Washington, Friday, December 9, 1955

TITLE 14—CIVIL AVIATION

Chapter I-Civil Aeronautics Board

Subchapter A—Civil Air Regulations [Supps. 19, 22, 31]

PART 40-SCHEDULED INTERSTATE AIR CARRIER CERTIFICATION AND OPERATIONS RULES

PART 41-CERTIFICATION AND OPERATION RULES FOR SCHEDULED AIR CARRIER OPERATIONS OUTSIDE THE CONTINENTAL LIMITS OF THE UNITED STATES

PART 42-IRREGULAR AIR CARRIER AND OFF-ROTTE RILES

OPERATIONAL USE OF WEATHER REPORTS FOR INSTRUMENT APPROACH, LANDING, OR TAKEOFF

The air carrier operating rules of the Civil Air Regulations provide in part that no instrument approach, landing, or takeoff shall be made when the latest weather report furnished by the U.S. Weather Bureau or a source approved by the Weather Bureau indicates a ceiling or visibility below authorized minimums. Current CAA rules (§§ 40.406-1, 41.119-2, and 42.56-2) apply this requirement to a runway weather observation contained in the official weather report for a particular runway.

At airports where runway weather observations are made, when reporting runway visibility to a pilot conducting an instrument approach, the tower controller obtains the runway visibility from a direct reading visibility meter in the tower. This meter is electronically geared to an instrument in the Weather Bureau for graphically recording the runway visibility value measured by the transmissometer instrument. A repeater visibility meter for indicating runway visibility in fractional increments is also located in the Weather Bureau office. Since minimums for instrument approach according to the regulation are predicated on the latest weather report, the tower controller cannot report immediately to a pilot any substantial visibility change observed on the tower visibility meter without coordination with the Weather Bureau, which must issue a special observation report for each such change in visibility value observed. Particularly under variable visibility conditions, this prevents maximum utilization of the instrumentation used for measuring runway visibility. It

also places an additional burden on the controller, which is undesirable under instrument weather conditions because his full attention should be directed to the control of air traffic. Also due to the various duties of the Weather Bureau observer, he may be preoccupied in performing some other function. For this reason the control tower operator is in a far better position to continually observe any change in visibility value indicated on the visibility meter and should be able to report such change in visibility to the pilot conducting an instrument approach as the official runway visibility without recording the observation or advising the Weather Bureau. In case any question should later arise as to the official runway visibility at any particular time, this information can be obtained from the Weather Bureau where it is continually recorded on graph recording. However, such visi-bility data may not be contained in the sequence weather report because of the time interval between the hourly and special observations made and recorded by the weather observer.

In view of the foregoing, the Administrator hereby adopts the following revisions to §§ 40.406-1, 41.119-2, and 42.56-2 of this subchapter. The proposed rules were published on October 1, 1955, in 20 F. R. 7338-9. Interested persons were afforded an opportunity to submit written views, data or arguments. Consideration has been given to all rel-

evant comments presented.

1. Section 40.406-1 is revised to read as follows:

§ 40.406-1 Takeoff and landing weather minimums (CAA rules which apply to § 40.406 (b))—(a) General. The ceiling and visibility contained in the main body of the latest weather report furnished by the U.S. Weather Bureau or a source approved by the Weather Bureau shall be used for instrument approach and landing or takeoff for all runways of an airport except as provided in paragraph (b) of this section.

(b) Runway visibility. Whenever the latest weather report furnished by the U.S. Weather Bureau or a source approved by the Weather Bureau, including an aural report from the control tower, contains a visibility value specified as a runway visibility for a particular

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runway of an airport, such visibility shall be used for a straight-in approach and landing or takeoff for that runway only.

2. Section 41.119-2 as published on March 20, 1954, in 19 F R. 1536, is revised to read as follows:

§ 41.119-2 Takeoff and landing weather minimums (CAA rules which apply to § 41.119) (The rules which apply to this section are the same as those stated in § 40.406-1 of this subchapter.)

3. Section 42.56-2 as published on March 20, 1954, in 19 F R. 1536, is revised to read as follows:

§ 42.56-2 Takeoff and landing weather minimums (CAA rules which apply to § 42.56) (The rules which apply to this section are the same as those stated in § 40.406-1 of this subchapter.)

(Sec. 205, 52 Stat. 984, as amended; 40 U. S. C. 425. Interpret or apply sec. 601, 52 Stat. 1007, as amended; 49 U. S. C. 551)

This supplement shall become effective December 15, 1955.

[SEAL] F B. LEE,
Administrator of Civil Aeronautics.

[F. R. Doc. 55-9900; Filed, Dec. 8, 1955; 8:45 a. m.]

*Information respecting the official runway visibility observations reported by the control tower operator may be obtained from the Office of the U.S. Weather Bureau for the airport concerned. Such office maintains a continuous graph recording of the runway visibility shown on the visibility meter in the control tower.

TITLE 47—TELECOMMUNI-**CATION**

Chapter I—Federal Communications Commission.

TFCC 55-10971

PART 3-RADIO BROADCAST SERVICES

REVISION OF REGILATIONS

In the matter of revision of Part 3 (Radio Broadcast Services) and the Standards of Good Engineering Practice Concerning Standard Broadcast Sta-

- 1. The Commission has under consideration the desirability of codification of its Standards of Good Engineering Practice Concerning Standard Broadcast Stations, making certain editorial changes therein and making certain editorial changes in Part 3 of its rules and regulations.
- 2. The AM Standards are contained in Title 47 of the Code of Federal Regulations as an Appendix to Subpart A of Part 3 of Chapter I, but are not codified the same as the other subdivisions of Title 47. The Commission has been requested by the Federal Register Division, National Archives and Records Service, General Services Administration to codify its Standards. The Commission is of the view that the public interest would be served by such a codification. Therefore, section and paragraph designators have been assigned to the Standards; and for the sake of convenience, the title has been changed to Standard Broadcast Technical Standards.
- 3. The codification of the Standards requires changing certain section numbers in Part 3 of the rules. Certain other editorial changes have been made in the Standards and Part 3 to change footnote to notes or parenthetical expressions to avoid confusion. The following is a table indicating both the new and old section numbers:

New	Old
Section No.	Section No.
3.39	13 AM Standards
3.40	12 AM Standards
3.49	21 AM Standards
3.50	22 AM Standards
3.89	
3.91-3.97	3.163-3.169
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3.301–3.332	FM Standards

- 4. The amendments adopted herein are editorial in nature and, therefore, prior publication of Notice of Proposed Rule Making under the provisions of section 4 of the Administrative Procedure Act is unnecessary.
- 5. The amendments adopted herein are issued pursuant to the authority contained in sections 4 (i) and 5 (d) (1) and 303 (r) of the Communications Act of 1934, as amended, and section 0.341 of the Commission's Statement of Organi-

zation, Delegations of Authority and Other Information.

6. It is ordered, That effective January 2, 1956, Part 3 and the Standards of Good Engineering Practice of Standard Broadcast Stations of the Commission's rules and regulations are revised as set forth below to include the editorial changes herein and all outstanding amendments adopted as of this date.

Adopted: November 3, 1955.

Released: November 4, 1955. FEDERAL COMMUNICATIONS

COMMISSION.

	Commissio,
[8	SEAL] MARY JANE MORRIS.
	Secretary.
	Deci ciai y.
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	Renewal of license.	3.970	
	[Reserved.] Repetitious applications.		Operation during a drill.
	Assignment or transfer of control.		THORITY: §§ 3.1 to 3.971 issued under 1, 48 Stat. 1066, as amended; 47 U.S. C.
	LICENSING POLICIES	154.	, to both too, as amended, at or b. o.
3,731	Licensing requirements; necessary		SUBPART A-STANDARD BROADCAST
J.101	showing.		STATIONS
	equipment		DEFINITIONS
3 751	Power requirement.		
3.752	Frequency control.	§ 3	3.1 Standard broadcast station. term "standard broadcast station"
	Antenna. Frequency monitors.	Mes. TUG	ns a broadcasting station licensed for

the transmission of radiotelephone emissions primarily intended to be received by the general public and operated on a channel in the band 535-1605 kilocycles.

- § 3.2 Standard broadcast band. The term "standard broadcast band" means the band of frequencies extending from 535 to 1605 kilocycles.
- § 3.3 Standard broadcast channel. The term "standard broadcast channel" means the band of frequencies occupied by the carrier and two side bands of a broadcast signal with the carrier frequency at the center. Channels shall be designated by their assigned carrier frequencies. The 107 carrier frequencies assigned to standard broadcast stations shall begin at 540 kilocycles and be in successive steps of 10 kilocycles.
- § 3.4 Dominant station. The term "dominant station" means a Class I station, as hereinafter defined, operating on a clear channel.
- § 3.5 Secondary station. The term "secondary station" means any station except a Class I station operating on a wal clear channel.
 - § 3.6 Daytime. The term "daytime" means that period of time between local sunrise and local sunset.
 - § 3.7 Nighttime. The term "nighttime" means that period of time between local sunset and 12 midnight local standard time.
 - § 3.8 Sunrise and sunset. The terms "sunrise and sunset" mean, for each particular location and during any particular month, the time of sunrise and sunset as specified in the instrument of authorization.
 - The term § 3.9 Broadcast day. "broadcast day" means that period of time between local sunrise and 12 midnight local standard time.
 - § 3.10 Experimental period. term "experimental period" means that time between 12 midnight and local sunrise. This period may be used for experimental purposes in testing and maintaining apparatus by the licensee of any standard broadcast station on its assigned frequency and with its authorized power, provided no interference is caused to other stations maintaining a regular operating schedule within such period. No station licensed for "daytime" or "specified hours" of operation may broadcast any regular or scheduled program during this period.
 - § 3.11 Service areas. (a) The term "primary service area" of a broadcast station means the area in which the groundwave is not subject to objectionable interference or objectionable fading.
 - (b) The term "secondary service area" of a broadcast station means the area served by the skywave and not subject to objectionable interference. The signal is subject to intermittent variations in intensity.
 - (c) The term "intermittent service area" of a broadcast station means the area receiving service from the groundwave but beyond the primary service

area and subject to some interference and fading.

- § 3.12 Portable transmitter The term "portable transmitter" means a transmitter so constructed that it may be moved about convenently from place to place, and is in fact so moved about from time to time, but not ordinarily used while in motion. In the standard broadcast band, such a transmitter is used in making field intensity measurements for locating a transmitter site for a standard broadcast station. A portable broadcast station will not be licensed in the standard broadcast band for regular transmission of programs intended to be received by the public.
- § 3.13 Auxiliary transmitter The term "auxiliary transmitter" means a transmitter maintained only for transmitting the regular programs of a station in case of failure of the main transmitter.
- § 3.14 Technical definitions—(a) Combined audio harmonics. The term "combined audio harmonics" means the arithmetical sum of the amplitudes of all the separate harmonic components. Root sum square harmonic readings may be accepted under conditions prescribed by the Commission.
- (b) Effective field. The term "effective field" or "effective field intensity" is the root-mean-square (RMS) value of the inverse distance fields at a distance of 1 mile from the antenna in all directions in the horizontal plane.
- (c) Operating power "Operating power" is the power that is actually supplied to the radio station antenna.
- (d) Maximum rated carrier power "Maximum rated carrier power" is the maximum power at which the transmitter can be operated satisfactorily and is determined by the design of the transmitter and the type and number of vacuum tubes used in the last radio stage.
- (e) Plate input power "Plate input power" means the product of the direct plate voltage applied to the tubes in the last radio stage and the total direct current flowing to the plates of these tubes, measured without modulation.
- (f) Antenna power "Antenna input power" or "antenna power" means the product of the square of the antenna current and the antenna resistance at the point where the current is measured.
- (g) Antenna current. "Antenna current" means the radio-frequency current in the antenna with no modulation.
- (h) Antenna resistance. "Antenna resistance" means the total resistance of the transmitting antenna system at the operating frequency and at the point at which the antenna current is measured.
- which the antenna current is measured.
 (i) Modulator stage. "Modulator stage" means the last amplifier stage of the modulating wave which modulates a radio-frequency stage.
- (j) Modulated stage "Modulated stage" means the radio-frequency stage to which the modulator is coupled and in which the continuous wave (carrier wave) is modulated in accordance with the system of modulation and the characteristics of the modulating wave.
- (k) Last radio stage. "Last radio stage" means the oscillator or radio-fre-

quency-power amplifier stage which supplies power to the antenna.

- (I) Percentage modulation (amplitude) "Percentage modulation" with respect to an amplitude modulated wave means the ratio of half the difference between the maximum and minimum amplitudes of the amplitude modulated wave to the average amplitude expressed in percentage.
- (m) Maximum percentage of modulation. "Maximum percentage of modulation" means the greatest percentage of modulation that may be obtained by a transmitter without producing in its output harmonics of the modulating frequency in excess of those permitted by these regulations.
- (n) High level modulation. "High level modulation" is modulation produced in the plate circuit of the last radio stage of the system.
- (o) Low level modulation. "Low level modulation" is modulation produced in an earlier stage than the final.
- (p) Plate modulation. "Plate modulation" is modulation produced by introduction of the modulating wave into the plate circuit of any tube in which the carrier frequency wave is present.
- (q) Grid modulation. "Grid modulation" is modulation produced by introduction of the modulating wave into any of the grid circuits of any tube in which the carrier frequency wave is present.
- (r) Blanketing. Blanketing is that form of interference which is caused by the presence of a broadcast signal of 1 v/m or greater intensity in the area adjacent to the antenna of the transmitting station. The 1 v/m contour is referred to as the blanket contour and the area within this contour is referred to as the blanket area.

ALLOCATION OF FACILITIES

- § 3.21 Three classes of standard broadcast channels—(a) Clear channel. A clear channel is one on which the dominant station or stations render service over wide areas and which are cleared of objectionable interference within their primary service areas and over all or a substantial portion of their secondary service areas.
- (b) Regional channel. A regional channel is one on which several stations may operate with powers not in excess of 5 kilowatts. The primary service area of a station operating on any such channel may be limited as a consequence of interference to a given field intensity contour.
- (c) Local channel. A local channel is one on which several stations may operate with powers not in excess of 250 watts. The primary service area of a station operating on any such channel may be limited as a consequence of interference to a given field intensity contour.
- §3.22 Classes and power of standard broadcast stations—(a) Class I station. A Class I station is a dominant station operating on a clear channel and designed to render primary and secondary service over an extended area and at relatively long distances. Its primary service area is free from objectionable interference from other stations on the

same and adjacent channels, and its secondary service area free from interference except from stations on the adjacent channel, and from stations on the same channel in accordance with the channel designation in § 3.25 or § 3.182. The operating power shall be not less than 10 kilowatts nor more than 50 kilowatts. (Also see § 3.25 (a) for further power limitation.)

- (b) Class II station. A Class II station is a secondary station which operates on a clear channel (see § 3.25) and is designed to render service over a primary service area which is limited by and subject to such interference as may be received from Class I stations. A station of this class shall operate with power not less than 0.25 kilowatt nor more than 50 kilowatts. Whenever necessary a Class II station shall use a directional antenna or other means to avoid interference with Class I stations and with other Class II stations, in accordance with § 3.182.
- (c) Class III station. A Class III station is a station which operates on a regional channel and is designed to render service primarily to a metropolitan district and the rural area contiguous thereto. Class III stations are subdivided into two classes. (The term "metropolitan district" as used in this paragraph is not limited in accordance with the definition given by the Bureau of the Census but includes any principal center of population in any area.)

(1) Class III-A station. A Class III-A station is a Class III station which operates with power not less than 1 kilowatt nor more than 5 kilowatts and the service area of which is subject to interference in accordance with § 3.182.

(2) Class III-B station. A Class III-B

(2) Class III-B station. A Class III-B station is a Class III station which operates with a power not less than 0.5 kilowatt, and not more than 1 kilowatt night and 5 kilowatts daytime, and the service area of which is subject to interference in accordance with \$ 3.182.

in accordance with § 3.182.

(d) Class IV station. A Class IV station is a station operating on a local channel and designed to render service primarily to a city or town and the suburban and rural areas contiguous thereto. The power of a station of this class shall not be less than 0.1 kilowatt nor more than 0.25 kilowatt, and its service area is subject to interference in accordance with § 3.182.

§ 3.23 Time of operation of the several classes of stations. The several classes of standard broadcast stations may be licensed to operate in accordance with the following:

(a) Unlimited time permits operation without a maximum limit as to time.

- (b) Limited time is applicable to Class II (secondary stations) operating on a clear channel only. It permits operation of the secondary station during daytime, and until local sunset if located west of the dominant station on the channel, or if located east thereof, until sunset at the dominant station, and in addition during night hours, if any, not used by the dominant station or stations on the channel.
- (c) Daytime permits operation during the hours between average monthly local

sunrise and average monthly local sunset. Daytime stations operating on local channels may, upon notification to the Commission and the Engineer in Charge of the radio district in which they are located, operate at hours beyond those specified in their license.

(d) Sharing time permits operation during hours which are so restricted by the station license as to require a division of time with one or more other stations

using the same channel.

- (e) Specified hours means that the exact operating hours are specified in the license. (The minimum hours that any station shall operate are specified in § 3.71.) Specified hours stations operating on local channels except those sharing time with other stations may, upon notification to the Commission and the Engineer in Charge of the radio district in which they are located, operate at hours beyond those specified in their license.
- § 3.24 Broadcast facilities; showing required. (a) Applications for new stations or for modifications of existing authorizations shall be filed on FCC Form 301, for licenses, on FCC Form 302; for renewal of licenses, on FCC Form 303.
- (b) An authorization for a new standard broadcast station or increase in facilities of an existing station will be issued only after a satisfactory showing has been made in regard to the following, among others:
- (1) That the proposed assignment will tend to effect a fair, efficient, and equitable distribution of radio service among the several states and communities.
- (2) That objectionable interference will not be caused to existing stations or that if interference will be caused the need for the proposed service outweighs the need for the service which will be lost by reason of such interference. That the proposed station will not suffer interference to such an extent that its service would be reduced to an unsatisfactory degree. (For determining objectionable interference, see §§ 3.182 and 3.186.)
- (3) That the applicant is financially qualified to construct and operate the proposed station.
- (4) That the applicant is legally qualified. That the applicant (or the person or persons in control of an applicant corporation or other organization) is of good character and possesses other qualifications sufficient to provide a satisfactory public service.
- (5) That the technical equipment proposed, the location of the transmitter, and other technical phases of operation comply with the regulations governing the same, and the requirements of good engineering practice. (See technical regulations of this subpart and § 3.188.)
- (6) That the facilities sought are subject to assignment as requested under existing international agreements and the rules and regulations of the Commission.
- (7) That the population within the 1 v/m contour does not exceed 1.0 percent of the population within the 25 mv/m contour: *Provided*, however That where the number of persons within the 1 v/m

contour is 300 or less the provisions of this subparagraph are not applicable.

- (8) That the public interest, convenience, and necessity will be served through the operation under the proposed assignment.
- § 3.25 Clear channels; Class I and II stations. The frequencies in the following tabulations are designated as clear channels and assigned for use by the Classes of stations given:
- (a) To each of the channels below there will be assigned one Class I station and there may be assigned one or more Class II stations within the continental limits of the United States operating limited time or daytime only 649, 650, 660, 670, 700, 720, 750, 760, 770, 780, 820, 830, 840, 870, 880, 890, 1020, 1040, 1100, 1120, 1160, 1180, 1200, and 1210 kilocycles. There also may be assigned to these frequencies Class II stations operating unlimited time in Alaska, Hawaii, Virgin Islands and Puerto Rico which will not deliver over 5 microvolts per meter groundwave day or night or 25 microvolts per meter 10 percent time skywave at night at any point within the continental limits of the United States. The power of the Class I stations on these channels shall not be less than 50 kilowatts.
- (b) To each of the channels below there may be assigned Class I and Class II stations: 680, 710, 810, 850, 940, 1000, 1030, 1060, 1070, 1080, 1090, 1110, 1130, 1140, 1170, 1190, 1500, 1510, 1520, 1530, 1540, 1550, and 1560 kilocycles.

Nore: Class I and II stations on 1540 kc shall deliver not over 5 microvolts per meter groundwave or 25 microvolts per meter 10 percent time skywave at any point of land in the Bahama Islands, and such stations operating nighttime (i. e., sunset to sunrice at the location of the Class II station) shall be located not less than 650 miles from the nearest point of land in the Bahama Islands.

(c) For Class II stations which will not deliver over 5 microvolts per meter groundwave or 25 microvolts per meter 10 percent time skywave at any point on the Canadian border and provided that such stations operating nighttime (i. e., sunset to sunrise at the location of the Class II station) are located not less than 650 miles from the nearest Canadian border, 540, 690, 740, 860, 990, 1010, and 1580 kilocycles.

Nore 1: See § 2.104 (a) of this chapter with respect to use of 540 kc.

Nore 2: A station on 1010 kilocycles shall also protect a Class I-B station at Havana, Cuba.

(d) In continenal United States, for Class II stations which operate daytime only with power not in excess of 1 kilowatt and which will not deliver over 5 microvolts per meter groundwave at any point on the Mexican border, and in Alaska, Hawaii, Puerto Rico, and the Virgin Islands, for Class II stations which will not deliver over 5 microvolts per meter groundwave or 25 microvolts per meter 10 percent time skywave at any point on the said border: 730, 800, 900, 1050, 1220 and 1570 kilocycles.

Note 1: See North American Regional Broadcasting Agreement, Havana, 1937 (Appendix I, Table IV) for use of 1050 kg by a station in New York.

Norm 2: See agreement with Mexico for further use of 1220 kg.

§ 3.26 Regional channels: Classes III—A and III—B stations. The following frequencies are designated as regional channels and are assigned for use by Class III—A and III—B stations: 550, 560, 570, 580, 590, 600, 610, 620, 630, 790, 910, 920, 930, 950, 960, 970, 980, 1150, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1350, 1360, 1370, 1380, 1390, 1410, 1420, 1430, 1440, 1460, 1470, 1480, 1590, and 1600 kilocycles.

Note: See North American Regional Broadcasting Agreement for special provisions concerning the accigning of Class II stations in other countries of North America to 550, 570, 590, 630, and 1270 less. Such stations shall be protected from interference in accordance with appendix II, table I, of said agreement.

§ 3.27 Local channels: Class IV stations. The following frequencies are designated as local channels and are assigned for use by Class IV stations: 1230, 1240, 1340, 1400, 1450, and 1490 kilocycles.

§ 3.28 Assignment of stations to channels. (a) The individual assignments of stations to channels which may cause interference to other United States stations only, shall be made in accordance with the provisions of this part for the respective classes of stations involved. (For determining objectionable interference, see §§ 3.182 and 3.186.)

(b) In all cases where an individual station assignment may cause interference with or may involve a channel assigned for priority of use by a station in another North American country, the classifications, allocation requirements and engineering standards set forth in the North American Regional Broadcasting Agreement shall be observed.

Note: Pending action with respect to ratification and entry into force of the North American Regional Broadcasting Agreement, Wachington, 1950 (referred to herein as NARBA), no accignment for a standard broadcast nation will be made which would be inconsistent with the terms of that agreement.

On an interim basis while protection by countries not signatory to the NARBA continues for assignments in the United States, no accignment for a standard broadcast station will be made which would cause objectionable interference to a duly notified station in a North American country which is not alguatory to the NARBA (i. e., Mexico and Halti). For purposes of this paragraph, interference will in general be determined, in accordance with the engineering standards in use at the time of the expiration of the Interim Agreement (Modus Vivendi), Treaties and Other International Acts Se ries 1553. In particular, the existence or absence of interference resulting from skywave cloud transmission will be determined by the use of Figures 1 and 6 (a) of § 3.190 and the "50 per cent exclusion" method of calculating RSS interference described in § 3.182. Figure 1 of § 3.190 will be utilized in connection with curve #1 of Figure 6 (a) of § 3.190 in the determination of 50 percent chywave signals. Figure 1 of § 3.190, converted for radiation of 100 mv/m at angles above the horizontal by the use of curve #1 of Figure 6 (a) of § 3.190 and the vertical radiation pattern for a 0.311 \(\lambda\) antenna in Figure 5 of § 3.190, will be used with the highest value of antenna radiation occurring at any pertinent angle between the limits de ceribed by curves #4 and #5 of Figure 6 (a)

of § 3.190 in the determination of 10% skywave signals. The Mexican and Haitian stations considered to be duly notified will be those notified and accepted in accordance with past agreements, and those subsequently notified in substantial accordance with the procedures and understandings that have pertained thus far.

Engineering standards now in force domestically differ in some respects from those for international purposes and specified must be observed in appropriate cases. For example, the engineering standards specifled for international purposes will be used to determine (1) the extent to which interference might be caused by a proposed station in the United States to a station in another North American country and (2) whether the United States should register an objection to any new or changed assignment notified by another North American country. The domestic standards in effect in the United States will be used to determine the extent to which interference exists or would exist from a foreign station where the value of such interference (1) enters into a calculation of the service to be rendered by a proposed operation in the United States or (2) enters into the calculation of the permissible interfering signal from one station in the United States towards another United States station.

In general, an application for a standard broadcast station assignment the grant of which would be consistent with provisions of the NARBA and would not cause objectionable interference to a duly notified station in a North American country not signatory to the NARBA, will be considered and acted upon by the Commission in accordance with the established procedure for action upon such applications even though the NARBA may not yet have entered into force. However, in particular cases such applications may also present considerations of an international nature which require that a different procedure be followed. In such cases the procedure to be followed will be determined by the Commission in the light of the special considerations involved.

Special provisions of a procedural nature respecting the consideration of applications for standard broadcast station assignments pending action with respect to ratification and entry into force of NARBA, 1950, and respecting the consideration of applications the grant of which would cause objectionable interference to duly notified stations in countries not signatory to the NARBA, are set out in a note to Part 1 of this chapter, Subparts D and G.

(c) Upon showing that a need exists, a Clas- II, III, or IV station may be assigned to a channel available for such class, even though interference will be received within its normally protected contour; Provided. (1) No objectionable interference will be caused by the proposed station to existing stations or that if interference will be caused, the need for the proposed service outweighs the need for the service which will be lost by reason of such interference; and (2) primary service will be provided to the community in which the proposed station is to be located; and (3) the interference received does not affect more than 10 percent of the population in the proposed station's normally protected primary service area. However, in the event that the nighttime interference received by the proposed station would exceed this amount, then an assignment may be made if the proposed station would provide either a standard broadcast nighttime facility to a community not having such a facility or if 25 per-

cent or more of the nighttime primary service area of the proposed station is without primary nighttime service.

§ 3.29 Class IV stations on regional channels. No license will be granted for the operation of a Class IV station on a regional channel: Provided, however, That Class IV stations presently authorized to operate on regional channels will not be required to change frequency, or power but will not be protected against interference from Class III stations.

§ 3.30 Station location and program origination. (a) Except as provided in paragraph (b) of this section, each standard broadcast station will be licensed to serve primarily a particular city, town, or other political subdivision which will be specified in the station license and the station will be considered to be located in such place. Unless licensed as a synchronous amplifier transmitter, each station shall maintain a studio, which will be known as the main studio, in the place where the station is located provided that the main studio may be located at the transmitter site whether or not the transmitter site is in the place where the station is located. A majority (computed on the basis of duration and not number) of a station's programs or in the case of a station affiliated with a network % of such station's non-network programs, whichever is smaller, shall originate from the main studio or from other studios or remote points situated in the place where the station is located.

(b) Stations will be licensed to serve more than one city, town, or other political subdivision only where a satisfactory showing is made that each such place meets all the requirements of the rules and regulations of this subpart with respect to the location of main studios; that the station can and will originate a substantial number of local live programs from each such place; and that the requirements as to origination of programs contained in paragraph (a) of this section would place an unreasonable burden on the station if it were licensed to serve only one city, town, or other political sub-division. A station licensed to serve more than one place shall be considered to be located in and shall maintain main studios in each such place. With respect to such station the requirements as to origination of programs contained in paragraph (a) of this section shall be satisfied by the origination of programs from any or all of the main studios or from other studios and remote points situated in any or all of the places in which the main studios are located.

(c) The transmitter of each standard broadcast station shall be so located that primary service is delivered to the borough or city in which the main studio is located in accordance with the rules and regulations of this subpart.

§ 3.31 Authority to move main studio. The licensee of a station shall not move its main studio outside the borders of the borough or city, state, district, territory, or possession in which it is located, unless such move is to the location of the station's transmitter, without first secur-

ing a modification of construction permit or license. The licensee shall promptly notify the Commission of any other change in location of the main studio.

§ 3.32 Special experimental authorizations. (a) Special experimental authorization may be issued to the licensee of a standard broadcast station in addition to the regular license upon informal application therefor and upon a satisfactory showing in regard to the following, among others:

(1) That the applicant has a program of research and experimentation which indicates reasonable promise of contribution to the development and practical application of broadcasting, and will be in addition to and advancement of the work that can be accomplished under its regular license.

(2) That the experimental operation and experimentation will be under the direct supervision of a qualified engineer with an adequate staff of engineers qualified to carry on the program of research

and experimentation.

(3) That the public interest, convenience, and necessity will be served by granting the authorization requested.

(b) In case a special experimental authorization permits additional hours of operation, no licensee shall transmit any commercial or sponsored program or make any commercial announcement during such time of operation. In case of other additional facilities, no additional charge shall be made by reason of transmission with such facilities.

(c) A special experimental authorization will not be extended after the actual experimentation is concluded.

(d) The program of research and experimentation as outlined in the application for a special experimental authorization shall be adhered to in the main unless the licensee is authorized to do otherwise by the Commission.

(e) The Commission may require from time to time a broadcast station holding such experimental authorization to conduct experiments that are deemed

desirable and reasonable.

(f) A supplemental report shall be filed with and made a part of each application for an extension of a special experimental authorization and shall include statements of the following:

(1) Comprehensive summary of all research and experimentation conducted.

(2) Conclusions and outline of proposed program for further research and development.

(3) Comprehensive summary and conclusions as to the social and economic effects of its use.

§ 3.33 Antenna systems; showing required. (a) An application for authority to install a broadcast antenna shall specify a definite site and include full details of the antenna design and expected performance. (Site-to-be-detormined applications which were on file prior to October 28, 1953, may be granted conditioned upon the filling within 60 days of such grant of an application for modification of permit specifying a site conforming to Commission's rules and standards.)

(b) All data necessary to show compliance with the terms and conditions

of the construction permit must be filed with the license application. If the station is using a directional antenna, a proof of performance must also be filed.

- § 3.34 Normal license period. (a) All standard broadcast station licenses will be issued for a normal license period of three years. Licenses will be issued to expire at the hour of 3:00 a. m., e. s. t., in accordance with the following schedule and at three-year intervals thereafter.
- (1) For stations located in Dalaware and
- Pennsylvania, August 1, 1957.
 (2) For stations located in Maryland, District of Columbia, Virginia, West Virginia, October 1, 1957.
- (3) For stations located in North Carolina, South Carolina, December 1, 1957.
- (4) For stations located in Florida, Puerto Rico and Virgin Islands, February 1, 1958.
- (5) For stations located in Alabama and Georgia, April 1, 1958.
- (6) For stations located in Arkansas, Lou-
- isiana and Mississippi, June 1, 1958.

 (7) For stations located in Tennessee, Kentucky and Indiana, August 1, 1958.
- (8) For stations located in Ohio and Michigan, October 1, 1958.
- (9) For stations located in Illinois and Wisconsin, December 1, 1958.
- (10) For stations located in Iowa and Missouri, February 1, 1956.
- (11) For stations located in Minnesota, North Dakota, South Dakota, Montana and
- Colorado, April 1, 1956. (12) For stations located in Kansas, Oklahoma, Nebraska, June 1, 1956.
- (13) For stations located in Texas, August 1, 1956.
- (14) For stations located in Wyoming, Nevada, Arizona, Utah, New Mexico and Idaho, October 1, 1956.
- (15) For stations located in California, December 1, 1956.
- (16) For stations located in Washington, Oregon, Alaska, Guam and Hawaii, February
- (17) For stations located in Connecticut, Maine, Massachusetts, New Hampshire, Rhode
- Island and Vermont, April 1, 1957. (18) For stations located in New Jersey and New York, June 1, 1957.
- (b) When an application is granted by the Commission necessitating the issuance of a modified license less than 60 days prior to the expiration date of the license sought to be modified, and an application for renewal of said license is granted subsequent or prior thereto (but within 30 days of expiration of the present license) the modified license as well as the renewal license shall be issued to conform to the combined action of the Commission.
- § 3.35 Multiple ownership. No license for a standard broadcast station shall be granted to any party (including all parties under common control.) if:
- (a) Such party directly or indirectly owns, operates or controls another standard broadcast station, a substantial portion of whose primary service area would receive primary service from the station in question, except upon a showing that public interest, convenience and necessity will be served through such multiple ownership situation; or
- (b) Such party, or any stockholder, officer or director of such party, directly or indirectly owns, operates, controls, or has any interest in, or is an officer or director of any other standard broadcast station if the grant of such license

would result in a concentration of control of standard broadcasting in a manner inconsistent with public interest, convenience, or necessity. In determining whether there is such a concentration of control, consideration will be given to the facts of each case with particular reference to such factors as the size, extent and location of areas served, the number of people served, classes of stations involved and the extent of other competitive service to the areas in question. The Commission, however, will in any event consider that there would be such a concentration of control contrary to the public interest, convenience or necessity for any party or any of its stockholders, officers or directors to have a direct or indirect interest in, or be stockholders, officers, or directors of, more than seven standard broadcast stations.

Note: 1. The word "control" as used herein is not limited to majority stock ownership, but includes actual working control in whatever manner exercised.

- 2. In applying the foregoing provisions to the stockholders of a corporation which has more than 50 voting stockholders, only those stockholders need be considered who are officers or directors or who directly or in-directly own 1 percent or more of the outstanding voting stock.
- § 3.36 Special field test authorization. (a) Upon a showing that a need exists, a special test authorization to operate a portable or regularly authorized transmitter may be issued to persons desiring to make field intensity surveys to determine values of soil conductivity, or other factors influencing radio wave propagation, in particular areas or paths for the period necessary to conduct the survey. Such authorizations may be granted upon the following conditions:
- (1) No objectionable interference will result to the operation of other authorized radio services; in this connection, the power requested shall not exceed that necessary for the purposes of the test.
- (2) The carrier will be unmodulated except for half-hourly voice identifica-
- (3) The plate power $(E_p \times I_p)$ of the final stage of the transmitter shall not exceed authorized test power and the antenna current shall be maintained at a constant value for each phase of the
- (4) The test equipment shall not be permanently installed, unless such installation has been separately authorized. Mobile units shall not be deemed permanent installations.

(5) The equipment must be operated by or under the personal direction of either a licensed radiotelephone firstclass or second-class operator.

- (6) A report, under oath, containing the measurements, their analysis and other results of the survey shall be filed with the Commission within sixty (60) days from the termination of the test authorization. The measurements taken shall be sufficiently complete, in accordance with § 3.186, so as to permit a determination of the inverse distance
- field at 1 mile in pertinent directions. (7) The plate voltage (Ep) and plate current (Ip) of the final stage of the transmitter shall be logged at half-hour

intervals and at any time that such power is changed. Certified copies of such log notations shall be submitted to the Commission with the required report.

(8) Operation shall conform to the requirements of Subpart G of this part.

(b) The test equipment, installation and operation thereof need not comply with the requirements of Commission rules and standards except as specified in this section: Provided however That the equipment, installation and operation shall be consistent with good engineering principles and practices.

(c) No authorization shall be issued unless the applicant for such authorization is determined to be legally qualified. Requests for authorizations to operate a transmitter under this section. shall be made in writing, signed by the applicant under oath or affirmation (with no special form provided, however), and shall set forth the following information:

(1) Purpose, duration and need for the survey.

(2) Frequency, plate power and time of operation.

(3) A brief description of the test antenna system and its estimated effective field and its proposed location.

(4) In the case of a directional test antenna, an estimate of the maximum fields expected to be radiated in the direction of pertinent broadcast stations.

(5) In the case of a person who is not a licensee or permittee of this Commission the information required by section

II of FCC Form 301. /
(d) The authorization may be modifled or terminated by notification from the Commission if in its judgment such action will promote the public interest, convenience or necessity.

§ 3.37 Minimum separation between stations. A license will not be granted for a station on a frequency of ±30 kc from that of another station if the area enclosed by the 25 mv/m groundwave contours of the two stations overlap, nor will a license be granted for the operation of a station on a frequency ± 20 kc or ±10 kc from the frequency of another station if the area enclosed by the 25 my/m groundwave contour of either one overlaps the area enclosed by the 2 my/m groundwave contour of the other.

EQUIPMENT

- § 3.39 Indicating instruments—specifications.
- (a) Instruments indicating the plate current or plate voltage of the last radio stage (linear scale instruments) shall meet the following specifications:
- (1) Length of scale shall be not less than $2x^3$ inches.
- (2) Accuracy shall be at least 2 percent of the full scale reading.
- (3) The maximum rating of the meter shall be such that it does not read off scale during modulation.
- (4) Scale shall have at least 40 divisions.
- (5) Full scale reading shall not be greater than five times the minimum normal indication.
- (b) Instruments indicating the antenna current shall meet the following. specifications:

(1) Instruments having logarithmic or square law scales.

(i) Shall meet same requirements as paragraph (a) (1) (2) and (3) of this section for linear scale instruments.

(ii) Full scale reading shall not be greater than three times the minimum normal indication.

(iii) No scale division above one-third full scale reading (in amperes) shall be greater than one-thirtieth of the full scale reading. (Example: An ammeter meeting requirement (i) having full scale reading of 6 amperes is acceptable for reading currents from 2 to 6 amperes, provided no scale division between 2 and 6 amperes is greater than one-thirtieth of 6 amperes, 0.2 ampere.)

(2) Radio frequency instruments having expanded scales.

(i) Shall meet same requirements as paragraph (a) (1) (2) and (3) of this

section for linear scale instruments. (ii) Full scale reading shall not be greater than five times the minimum normal indication.

(iii) No scale division_above one-fifth full scale reading (in amperes) shall be greater than one-fiftieth of the full scale reading. (Example: An ammeter meeting the requirement (i) is acceptable for indicating currents from 1 to 5 amperes, provided no division between 1 and 5 amperes is greater than one-fiftieth of 5 amperes, 0.1 ampere.)

(iv) Manufacturers of instruments of the expanded scale type must submit data to the Commission showing that these instruments have acceptable expanded scales, and the type number of these instruments must include suitable

designation.

- (c) A thermocouple type ammeter meeting the requirements of paragraph (b) of this section shall be permanently installed in the antenna circuit. (This thermocouple ammeter may be so connected that it is short circuited or open circuited when not actually being read. If open circuited, a make-before-break switch must be employed.)
- (d) Remote reading antenna ammeters may be employed and the indications logged as the antenna current in accordance with the following:

(1) Remote reading antenna ammeters may be provided by

(i) Inserting second thermocouple directly in the antenna circuit with remote leads to the indicating instrument.

(ii) Inductive coupling to thermocouple or other device for providing direct current to indicating instrument.

(iii) Capacity coupling to thermo-couple or other device for providing direct current to indicating instrument.

- (iv) Current transformer connected to second thermocouple or other device for providing direct current to indicating instrument.
- (v) Using transmission line current meter at transmitter as remote reading ammeter. See subparagraph (7) of this paragraph.
- (vi) Using indications of phase monitor for determining the ratio of antenna currents in the case of directional antennas, provided the indicating instruments in the unit are connected directly in the current sampling circuits with no other shunt circuits of any nature.

- (2) The remote ammeter shall be connected at the same point in the antenna circuit as the thermocouple ammeter and shall be so connected and calibrated as to read in amperes within 2 percent of this meter over the entire range above one-third or one-fifth full scale. See paragraphs (b) (1) (i) (iii) and (b) (2) (i) (iii) of this section.
- (3) The regular antenna ammeter shall be above the coupling to the remote meter in the antenna circuit so it does not read the current to ground-through the remote meter.
- (4) All remote meters shall meet the same requirements as the regular antenna ammeter with respect to scale accuracy, etc.
- (5) Calibration shall be checked against the regular meter at least once a week.
- (6) All remote meters shall be provided with shielding or filters as necessary to prevent any feed-back from the antenna to the transmitter.
- (7) In the case of shunt excited antennas, the transmission line current meter at the transmitter may be considered as the remote antenna ammeter provided the transmission line is terminated directly into the excitation circuit feed line, which shall employ series tuning only (no shunt circuits of any type shall be employed) and insofar as practicable, the type and scale of the transmission line meter should be the same as those of the excitation circuit feed line meter (meter in slant wire feed line or equivalent)
- (8) Remote reading antenna ammeters employing vacuum tube rectifiers are acceptable provided:
- (i) The indicating instruments shall meet all the above requirements for linear scale instruments.
- (ii) Data are submitted under oath showing the unit has an over-all accuracy of at least 2 percent of the full scale reading.

(iii) The installation, calibration, and checking are in accordance with the requirements of this paragraph.

(9) In the event there is any question as to the method of providing or the accuracy of the remote meter, the burden of proof of satisfactory performance shall be upon the licensee and the manufacturer of the equipment.

- (e) Statons determining power by the indirect method may log the transmission line current in lieu of the antenna current provided the instrument meets the above requirements for antenna ammeters, and further provided that the ratio between the transmission line current and the antenna current is entered each time in the log. In case the station is authorized for the same operating power for both day and nighttime operation, this ratio shall be checked at least once daily. Stations which are authorized to operate with nighttime power different from the daytime power shall check the ratio for each power at least once daily.
- (f) No instrument, the seal of which has been broken, or the accuracy of which is questionable, shall be employed. Any instrument which was not originally sealed by the manufacturer that has been opened shall not be used until it has

been recalibrated and sealed in accordance with the following: Repairs and recalibration of instruments shall be made by the manufacturer, by an authorized instrument repair service of the manufacturer or by some other properly qualified and equipped instrument repair service. In either case the instrument must be resealed with the symbol or trade-mark of the repair service and a certificate of calibration supplied therewith.

(g) Since it is usually impractical to measure the actual antenna current of a shunt excited antenna system, the current measured at the input of the excitation circuit feed line is accepted as

the antenna current.

(h) Recording instruments may be employed in addition to the indicating instruments to record the antenna ourrent and the direct plate current and direct plate voltage of the last radio stage provided that they do not affect the operation of the circuits or accuracy of the indicating instruments. If the records are to be used in any proceedings before the Commission as representation of operation with respect to plate or antenna current and plate voltage only, the accuracy must be the equiva-lent of the indicating instruments and the calibration shall be checked at such intervals as to insure the retention of the accuracy.

(i) The function of each instrument shall be clearly and permanently shown on the instrument itself or on the panel immediately adjacent thereto.

§ 3.40 Transmitter design, construction, and safety of life requirements.

- (a) Design. The general design of standard broadcast transmitting equipment [main studio microphone (including telephone lines, if used, as to performance only) to antenna output] shall be in accordance with the following specifications. (In cases where telephone lines are not available to give the performance as required in these specifications a relay transmitter may be authorized to supersede the lines.) For the points not specifically covered below. the principles set out shall be followed: The equipment shall be so designed that:
- (1) The maximum rated carrier power (determined by § 3.42) is in accordance with the requirements of § 3.41.
- (2) The equipment is capable of satisfactory operation at the authorized operating power or the proposed operating power with modulation of at least 85 to 95 percent with no more distortion than given in (3) below.
- (3) The total audio frequency distortion from microphone terminals, including microphone amplifier, to antenna output does not exceed 5 percent harmonics (voltage measurements of arithmetical sum or r. s. s.) when modulated from 0 to 84 percent, and not over 7.5 percent harmonics (voltage measurements of arithmetical sum or r. s. s.) when modulating 85 percent to 95 percent (distortion shall be measured with modulating frequencies of 50, 100, 400, 1000, 5000 and 7500 cycles up to tenth harmonic or 16000 cycles, or any intermediate frequency that readings on these frequencies indicate is desirable)

- (4) The audio frequency transmitting characteristics of the equipment from the microphone terminals (including microphone amplifier unless microphone frequency correction is included in which event proper allowance shall be made accordingly) to the antenna output does not depart more than 2 decibels from that at 1000 cycles between 100 and 5000 cycles.
- (5) The carrier shift (current) at any percentage of modulation does not exceed 5 percent.
- (6) The carrier hum and extraneous noise (exclusive of microphone and studio noises) level (unweighted r. s. s.) is at least 50 decibels below 100 percent modulation for the frequency band of 150 to 5000 cycles and at least 40 decibels down outside this range.

(7) The transmitter shall be equipped with suitable indicating instruments in accordance with the requirements of § 3.58 and any other instruments necessary for the proper adjustment and operation of the equipment.

(8) Adequate provision is made for varying the transmitter power output between sufficient limits to compensate for excessive variations in line voltage, or other factors which may affect the power output.

(9) The transmitter is equipped with automatic frequency control equipment capable of maintaining the operating frequency within the limit specified by

§ 3.59.
(i) The maximum temperature variation at the crystal from the normal operating temperature shall not be greater than.

Plus or minus 0.1° C. when an X or

Y cut crystal is employed, or

Plus or minus 1.0° C. when low temperature coefficient crystal is employed. (ii) Unless otherwise authorized, a

- thermometer shall be installed in such manner that the temperature at the crystal can be accurately measured within 0.05° C. for X or Y cut crystal or 0.5° for low temperature coefficient crystal.
- (iii) It is preferable that the tank circuit of the oscillator tube be installed in the temperature controlled chamber.

Note: Explanations of excessive frequency deviations will not be accepted when temperature variations are in excess of the values specified.

- (10) Means are provided for connection and continuous operation of approved modulation monitor and approved frequency monitor.
- (i) The radio frequency energy for operation of the approved frequency monitor shall be obtained from a radiofrequency stage prior to the modulated stage unless the monitor is of such design as to permit satisfactory operation when otherwise connected and the monitor circuits shall be such that the carrier is not heterodyned thereby.
- (11) Adequate margin is provided in all component parts to avoid overheating at the maximum rated power output.
- (b) Construction. In general, the transmitter shall be constructed either on racks and panels or in totally enclosed frames protected as required by article 810 of the National Electrical

Code and as set forth in this paragraph and paragraph (c) of this section.

Note 1. The final stages of high power transmitters may be assembled in open frames provided the equipment is enclosed by a protective fence.

Note 2. The pertinent sections of article 810 of the National Electrical Code read as follows:

General-Transmitters shall com-"8191.

ply with the following:
"a. Enclosing—The transmitter shall be enclosed in a metal frame or grille, or ceparated from the operating space by a barrier or other equivalent means, all metallic parts of which are effectually connected to ground.

"b. Grounding of controls—All external metallic handles and controls accessible to the operating personnel shall be effectually grounded. No circuit in excess of 150 volts shall have any parts exposed to direct con-A complete dead-front type of switchboard is preferred.

"c. Interlocks on doors-All access doors shall be provided with interlocks which will disconnect all voltages in excess of 350 volta

when any access door is opened."

(1) Means shall be provided for making all tuning adjustments, requiring voltages in excess of 350 volts to be applied to the circuit, from the front of the panels with all access doors closed.

(2) Proper bleeder resistors or other automatic means shall be installed across all the condenser banks to remove any charge which may remain after the high voltage circuit is opened (in certain instances the plate circuit of the tubes may provide such protection; however, individual approval of such shall be obtained by the manufacturer in case of standard equipment, and the licensee in case of composite equipment)

(3) All plate supply and other high voltage equipment, including transformers, filters, rectifiers and motor generators, shall be protected so as to prevent

injury to operating personnel.

(i) Commutator guards shall be provided on all high voltage rotating machinery (coupling guards on motor generators, although desirable, are not required)

(ii) Power equipment and control panels of the transmitter shall meet the above requirements (exposed 220 volt AC switching equipment on the front of the power control panels is not recommended: however, is not prohibited)

(iii) Power equipment located at a broadcast station but not directly associated with the transmitter (not purchased as part of same), such as power distribution panels, control equipment on indoor or outdoor stations and the substations associated therewith, are not under the jurisdiction of the Commission; therefore, § 3.46 does not apply.

(iv) It is not necessary to protect the equipment in the antenna tuning house and the base of the antenna with screens and interlocks, provided the doors to the tuning house and antenna base are fenced and locked at all times, with the keys in the possession of the operator on duty at the transmitter. Ungrounded fencing or wires should be effectively grounded, either directly or through proper static leaks. Lighting protection for the antenna system is not specifically required but should be installed.

(v) The antenna, antenna lead-in, counterpoise (if used), etc., shall be in-

stalled so as not to present a hazard. The antenna may be located close by or at a distance from the transmitter building. A properly designed and terminated transmission line should be used between the transmitter and the antenna when located at a distance.

(4) Metering equipment. (In addition to the following requirements, instruments shall meet the requirements of

§§ 3.39 and 3.58.)

(i) All instruments having more than 1,000 volts potential to ground on the movement shall be protected by a cage or cover in addition to the regular case. (Some instruments are designed by the manufacturer to operate safely with voltages in excess of 1,000 volts on the movement. If it can be shown by the manufacturer's rating that the instrument will operate safely at the applied potential, additional protection is not necessary.)

(ii) In case the plate voltmeter is located on the low potential side of the multiplier resistor with one terminal of the instrument at or less than 1,000 volts above ground, no protective case is required. However, it is good practice to protect voltmeters subject to more than 5,000 volts with suitable over-voltage protective devices across the instrument terminals in case the winding opens.

(iii) The antenna ammeters (both regular and remote and any other radio frequency instrument which it is necessary for the operator to read) shall be so installed as to be easily and accurately read without the operator having to risk contact with circuits carrying high potential radio frequency energy.

(c) Wiring and shielding. (1) The transmitter panels or units shall be wired in accordance with standard switchboard practice, either with insulated leads properly cabled and supported or with rigid bus bar properly insulated and protected.

(2) Wiring between units of the transmitter, with the exception of curcuits carrying radio frequency energy, shall be installed in conduits or approved fiber or metal raceways to protect it from mechanical injury.

(3) Circuits carrying low level radio frequency energy between units shall be either concentric tube, two wire balanced lines, or properly shielded to prevent the pickup of modulated radio fre-

quency energy from the output circuits. (4) Each stage (including the oscillator) preceding the modulated stage shall be properly shielded and filtered to prevent unintentional feedback from any circuit following the modulated stage (an exception to this requirement may be made in the case of high level modulated transmitters of approved manufacture which have been properly engineered to prevent reaction).

(5) The crystal chamber, together with the conductor or conductors to the oscillator circuit shall be totally shielded.

(6) The monitors and the radio frequency lines to the transmitter shall be thoroughly shielded.

(d) Installation. (1) The installation shall be made in suitable quarters.

(2) Since an operator must be on duty at the transmitter control point during operation, suitable facilities for his welfare and comfort shall be provided at the control point.

(e) Spart tubes. A spare tube of every

type employed in the transmitter and frequency and modulation monitors shall be kept on hand. When more than one tube of any type are employed, the following table determines the number of spares of that type required:

Number of each type employed:	required
1 or 2	1
3 to 5	2
6 to 8	3
9 or more	4

- (f) Studio equipment. (1) The studio equipment shall be subject to all the above requirements where applicable except as follows:
- (i) If it is properly covered by an underwriter's certificate, it will be considered as satisfying the safety requirements.
- (ii) Section 8191 of article 810 of the National Electrical Code shall apply for voltages only when in excess of 500 volts.
- (2) No specific requirements are made relative to the design and acoustical treatment. However, the studios and particularly the main studio should be in accordance with the standard practice for the class of station concerned, keeping the noise level as low as reasonably possible.
- § 3.41 Maximum rated carrier power. tolerances. The maximum rated carrier power of a transmitter shall be an even power step as recognized by the Commission's plan of allocation (100 watts, 250 watts, 500 watts, 1 kw., 5 kw., 10 kw., 25 kw., 50 kw.) and shall not be less than the authorized power nor shall it be greater than the value specified in the following table:

Class of station	Maximum power authorized to station	Maximum rated carrier power permitted to be installed
Class IV Class III Class III Class II	100 or 250 watts	Watts 250 1,000 5,000 1,000 10,000 50,000 10,000 50,000

- § 3.42 Maximum rated carrier power how determined. The maximum rated carrier power of a standard broadcast transmitter shall be determined as the sum of the applicable power ratings of the vacuum tubes employed in the last radio stage.
- § 3.43 Changes in equipment; authority for No licensee or permittee shall change, in the last radio stage, the number of vacuum tubes, nor change to vacuum tubes of different power rating or ${f c}$ lass of operation, nor shall it change the system of modulation, without authority of the Commission.
- § 3.44 Other changes in equipment. Other changes except as provided for in this subpart which do not affect the

maximum power rating or operating power of the transmitter or the operation or precision of the frequency control equipment may be made at any time without authority of the Commission, but in the next succeeding application for renewal of license such changes. which affect the information already on file shall be shown in full.

- § 3.45 Radiating system. (a) All applicants for new, additional, or different broadcast facilities and all licensees requesting authority to change the transmitter site of an existing station shall specify a radiating system the efficiency of which complies with the requirements. of good engineering practice for the class and power of the station. (See §§ 3.186 and 3.189.)
- (b) No broadcast station licensee or permittee shall change the physical height of the transmitting antenna, or supporting structures, or make any changes in the radiating system which will measurably alter the radiation patterns, except upon application to and authority from the Commission.
- (c) Should any changes occur which would alter the resistance of the antenna system, the licensee shall immediately make a new determination of the antenna resistance (see § 3.54) and shall submit application for authority to determine power by the direct method on the basis of the new measurements.
- (d) The antenna and/or supporting structure shall be painted and illuminated in accordance with the specifications supplied by the Commission pursuant to section 303 (g) of the Communications Act of 1934 as amended. (See Part 17 of this chapter; Rules Concerning the Construction Marking, and Lighting of Antenna Structures.)
- (e) The simultaneous use of a common antenna or antenna structure by more than one standard broadcast station, or by one or more standard broadcast stations and one or more stations of any other-class or service may be authorized provided:
- (1) Complete verified engineering data are submitted showing that satisfactory operation of each station will be obtained without adversely affecting the operation of the other station.
- (2) The minimum antenna height or field intensity for each standard broadcast station concerned complies with paragraph (a) of this section.
- (3) Complete responsibility for maintaining the installation and for painting and illuminating the structure in accordance with the pertinent provisions of Part 17 of this chapter is assumed by one of the licensees.
- 3.46 Transmitter (a) The transmitter proper and associated transmitting equipment of each broadcast station shall be designed, constructed, and operated in accordance with good engineering practice in all phases not otherwise specifically included in the regulations in this subpart.
- (b) The transmitter shall be wired and shielded in accordance with good engineering practice and shall be provided with safety features in accordance with the specifications of article 810 of the

`current National Electrical Code as approved by the American Standards Association.

(c) The station equipment shall be so operated, tuned, and adjusted that emissions are not radiated outside the authorized band which cause or are capable of causing interference to the communications of other stations. Spurious emissions, including radio frequency harmonics, and audio frequency harmonics, shall be maintained at as low a level as practicable at all times in accordance with good engineering practice. In the event interference is caused to other stations by modulating frequencies in excess of 7500 cycles or spurious emissions, including radio frequency harmonics and audio frequency harmonics outside the band plus or minus 7500 cycles of the authorized carrier frequency, the licensee or permittee small install equipment or make adjustments which limit the emissions to within this band or to such an extent above 7500 cycles as to reduce the interference to where it is no longer objectionable.

(d) The audio distortion, audio frequency response, carrier hum, noise level, and other essential phases of the operation which control the external effects shall at all times conform to the requirements of good engineering practice.

- § 3.47 Equipment performance measurements. (a) The licensee of each standard broadcast station shall make the following equipment performance measurements at yearly intervals. One such set shall be made during the fourmonth period preceding the date of filing application for renewal of station license:
- (1) Data and curves showing over-all audio frequency response from 30 to 7500 CPS for approximately 25, 50, 85, and 100 (if obtainable) percent modulation. Family of curves should be plotted (one for each percentage above) with DB above and below a reference frequency of 1000 CPS as ordinate and audio frequency as abscissa.
- (2) Data and curves showing audio frequency harmonic content for 25, 50. 85, and 100 percent modulation for fundamental frequencies of 50, 100, 400, 1000, 5000, and 7500 CPS (either arithmetical or root sum square values up to the tenth harmonic or 16000 CPS) Plot family of curves (one for each percentage above) with percent distortion as ordinate and audio frequency as absolssa.
- (3) Data showing percentage carrier shift for 25, 50, 85, and 100 percent modulation with 400 CPS tone.
- (4) Carrier hum and extraneous noiso generated within the equipment and measured as the level below 100 percent modulation throughout the audio spectrum or by bands.
- (5) Measurements or evidence showing that spurious radiations including radio frequency harmonics are suppressed or are not present to a degree capable of causing objectionable interference to other radio services. Field intensity measurements are preferred but observations made with a communications type receiver may be accepted. However, in particular cases involving interference or controversy, the Commis-

sion may require actual measurements. Measurements shall be made with the equipment adjusted for normal program operation and shall include all circuits between main studio amplifier input and antenna output including equalizer or correction circuits normally employed. but without compression if such amplifier is employed.

(b) The data required by paragraph (a) of this section together with a description of instruments and procedure. signed by the engineer making the measurements, shall be kept on file at the transmitter and retained for a period of two years and on request shall be made available during that time to any duly authorized representative of the Federal Communications Commission.

§ 3.48 Acceptability of broadcast transmitters for licensing. (a) In order to facilitate the filing of, and action on applications for station authorizations. transmitters will be accepted for licensing by the Commission under one of the following conditions:

(1) A transmitter may be Type-Accepted upon the request of any manufacturer of transmitters built in quantity by following the type acceptance procedure set forth in Part 2 of this chapter, provided that the data and information submitted indicates that the transmitter meets the requirements of § 3.40. If accepted, such transmitter will be included on the Commission's "Radio Equipment List, Part B, Aural Broadcast Equipment" Applicants specifying transmitters included on such a list need not submit detailed descriptions and diagrams where the correct type number is specified, provided that the equipment proposed is identical with that accepted. Copies of this list are available for inspection at the Commission's office in Washington, D. G., and at each of its field offices.

(2) An application specifying a transmitter not included on the Radio Equipment List, Part B may be accepted upon the request of a prospective licensee submitting with the application for construction permit a complete description of the transmitter, including the circuit diagram, listing of all tubes used, function of each, multiplication in each stage, plate current and voltage applied to each tube, a description of the oscillator circuit together with any devices installed for the purpose of frequency stabilization and the means of varying output power to compensate for power supply voltage variations. However, if this data has been filed with the Commission by a manufacturer in connection with a request for type acceptance, it need not be submitted with the application for construction permit but may be referred to as "on file" Measurement data for type acceptance made in accordance with subparagraph (1) of this paragraph shall be submitted with the license application.

(3) A transmitter shown on an instrument of authorization by manufacturer and type number, or as a composite, and which was in use prior to June 30, 1955 may continue to be used by the licensee, his successors or assignees, provided such transmitter continues to comply with the rules and regulations.

(b) Additional rules with respect to withdrawal of type-acceptance, modification of type-accepted equipment and limitations on the findings upon which type acceptance is based are set forth in Part 2 of this chapter.

§ 3.49 Requirements for approval of frequency monitors—(a) General requirements and approval. (1) There are several ways or means by which it can be determined whether the frequency of the emitted carrier wave is within the required limits of the assigned frequency. However, one of the commonest ways is by means of a local piezo oscillator of known frequency producing a beat with the emitted wave used in conjunction with an instrument to indicate the resultant-beat frequency. The visual indicator is the only method now in common use by which it is considered that the frequency of the beat may be determined with the required degree of accuracy. Approval of a frequency monitor will be given based upon data taken by the Laboratory Division of the F. C. C. Any manufacturer desiring to submit a monitor for approval shall supply the Commission with full details. If the specifications appear to meet the requirements, the Commission will authorize the Laboratory Division to issue shipping instructions. The shipping charges to and from the Laboratory Division at Laurel, Md., shall be paid by the manufacturer.

(2) In approving a frequency monitor, based upon the tests by the Laboratory, the Commission merely recognizes that the type of monitor has the inherent capability of functioning in compliance with § 3.60, if properly constructed, maintained, and operated. The Commission accepts no responsibility beyond this and further realizes that these monitors may have a limited range over which the visual indicator will determine deviations. Accordingly, it is necessary that adjunct equipment be used to determine major deviations.

Nore: In addition to the visual indicator, the range of which is necessarily limited in order to obtain the required accuracy, an aural indicator should also be employed to indicate frequency deviations beyond the range of the visual indicator, particularly where the visual indicator is to designed that the indication becomes zero when the deviations become considerably greater than the range of the instrument. When it is desired to make any change, either me-chanical or electrical, the details shall be submitted to the Commission for its consideration.

(3) No change whatsoever will be permitted in the monitors sold under approval number issued by the Commission except when the licensee or the manufacturer is specifically authorized to make such changes.

(4) When it is desired to make any change, either mechanical or electrical, the details shall be submitted to the Commission for its consideration.

(5) Approval is given subject to withdrawal if the unit proves defective in service and cannot be relied upon under usual conditions of maintenance and operation encountered in the average

standard broadcast station. Withdrawal of approval means that no further units may be installed by standard broadcast stations for the purpose of complying with § 3.60, but will not affect units already sold, unless it is found that there has been an unauthorized change in design or construction, or the material or workmanship is defective.
(b) General specifications. The gen-

eral specifications that frequency monitors shall meet before they will be approved by the Commission are as follows:

(1) The unit shall have an accuracy of at least five parts per million under ordinary conditions (temperature, humidity, power supply and other conditions which may affect its accuracy) encountered in standard broadcast stations throughout the United States.

(2) The range of the indicating device shall be at least from 20 cycles below to 20 cycles above the assigned frequency.

(3) The scale of the indicating device shall be so calibrated as to be accurately read within at least 1 cycle.

(4) The unit shall be equipped with an automatic temperature control chamber (preferably enclosing the tank circuits of the oscillator) such that the maximum temperature variation at the crystal from the normal operating temperature shall not be greater than,

Plus or minus 0.05° C. when X or Y

cut crystal is employed, or Plus or minus 0.5° C. when low temperature coefficient crystal is employed.

(5). Unless otherwise specifically authorized, the instrument shall be equipped with a thermometer such that the temperature can be accurately measured within 0.025° C. for X or Y cut crystal or 0.25° C. for low temperature coefficient crystal.

(6) The monitor circuit shall be such that it may be continuously operated and the emitted carrier of the station is not heterodyned thereby.

(7) Means shall be provided for adjustment of the temperature or other means for correction of the indications of the monitor to agree with the externat standard.

(c) Tests to be made by the Laboratory Division of the F C. C. The tests to be made at the Laboratory will include the determination of the following:

(1) Accuracu. (i) Oscillator frequency, as received.

(ii) Constancy of oscillator frequency, as measured several times in 1 month.

(iii) Accuracy of readings of frequency-difference instrument.

(iv) Functioning of frequency adjustment device.

(v) Effects on frequency of changing tubes and of voltage variations.

(2) Temperature control stability. Effect on frequency of variation of room temperature through a range not to exceed 10° to 35° C.

(3) Sensitivity. Response of indicating instrument to small changes of frequency.

(4) General construction. (i) Inspection to determine ability to stand shipment and service.

(ii) Special tests to determine quality of construction, such as effect of tilting or tipping on frequency.

(5) Miscellaneous performance. (a) Various, depending on character of apparatus (e. g., changes after stopping and starting, effect of varying coupling

with transmitter, etc.)

(d) The equipment will be operated in a test in the same way and the same conditions under which it will be used in service as specified by the manufacturer. The manufacturer shall supply to the Laboratory Division all instructions or services which will be supplied to the purchaser of the equipment. The equipment, as submitted, shall be adjusted for operation in connection with broadcast stations operating on 1600 kilocycles.

§ 3.50 Requirements for approval of modulation monitors. (a) Approval will be given based on the test data taken at the Laboratory Division of the F C. C. Any manufacturer desiring to submit a monitor for approval shall supply the Commission with full details and if the specifications appear to meet the requirements, the Commission will authorize the Laboratory Division to issue shipping instructions. The shipping charges to and from Laurel, Md., shall be paid by the manufacturer.

(b) The specifications that the modulation monitor shall meet before it will be approved by the Commission are as

follows:

(1) A DC meter for setting the average rectified carrier at a specific value and to indicate changes in carrier in-

tensity during modulation.

- (2) A peak indicating light or similar device that can be set at any predetermined value from 50 to 120 percent modulation to indicate on positive peaks. and/or from 50 to 100 percent negative modulation.
- (3) A semi-peak indicator with a meter having the characteristics given below shall be used with a circuit such that peaks of modulation of duration between 40 and 90 milliseconds are indicated to 90 percent of full value and the discharge rate adjusted so that the pointer returns from full reading to 10 percent of zero within 500 to 800' milliseconds. A switch shall be provided so that this meter will read either positive or negative modulation and, if desired, in the center position it may read both in a full-wave circuit. The characteristics of the indicating meter are as follows:
- The time for one complete oscillation of the pointer shall be 290 to 350 milliseconds. The damping factor shall be between 16 and 200. The useful scale length shall be at least 2.3 inches. The meter shall be calibrated for modulation from 0 to 110 percent and in decibels below 100 percent with 100 percent being 0 DB.
- (ii) The accuracy of the reading on percentage of modulation shall be ±2 percent for 100 percent modulation, and ±4 percent of full scale reading at any other percentage of modulation.
- (4) The frequency characteristics curve shall not depart from a straight line more than ±½ DB from 30 to 10000 cycles. The amplitude distortion or generation of audio harmonics shall be kept to a minimum.
- (5) The modulation meter shall be equipped with appropriate terminals so

that an external peak counter can be readily connected.

(6) Modulation will be tested at 115 volts ± 5 percent and 60 cycles, and the above accuracies shall be applicable under these conditions.

(7) All specifications not already covered above, and the general design, construction, and operation of these units must be in accordance with good engineering practice.

TECHNICAL OPERATION

§ 3.51 Operating power how determined. (a) Except as provided in paragraph (b) of this section, the operating power shall be determined by the direct method (the square of the antenna current times the antenna resistance at the point where the current is measured and at the operating frequency)

(b) Operating power shall be determined on a temporary basis by the indirect method: (1) In case of an emergency where the licensed antenna system has been damaged by causes beyond the control of the licensee (see § 3.45) or (2) Pending completion of authorized changes in the antenna system, or (3) If any change is made in the antenna system or any other change is made which may affect the antenna system. (See § 3.45.)

§ 3.52 Operating power indirect measurement. (a) The operating power determined by indirect measurement from the plate input power of the last radio stage is the product of the plate voltage (Ep) the total plate current of the last radio stage (Ip) and the proper factor (F) given in paragraph (b) of this section: That is

Operating power= $Ep \times Ip \times F$

(b) Factor to be used.

Factor (F)	Method of modulation	Maximum rated carrier power	Class of ampli- fier
0.70 .80 .35 .65	Plate Plate Low Level Low Level Grid	0.1-1.0 kw 5 kw and over 0.1 kw and over 0.1 kw and over 0.1 kw and over	

¹ All linear amplifier operation where efficiency approaches that of Class C operation.

(c) In computing operating power by the indirect method, the factor in paragraph (b) of this section shall apply in all cases, and no distinction will be recognized due to the operating power being less than the maximum rated carrier power.

§ 3.53 [Reserved.]

§ 3.54 Operating power direct measurement. (a) Applications to determine the operating power by the direct method shall be made on FCC Form 302.

(b) The resistance variation method, substitution method and bridge method are acceptable methods of measuring the total antenna resistance.

(c) A determination of the resistance of an omm-directional antenna shall be made by taking a series of measurements at 5, 10, 15, and 20 kc on each side of the operating frequency. The values measured should be plotted with frequency as abscissa and resistance.in

ohms as ordinate and a smooth curve drawn. The point on the ordinate where this curve intersects the operating frequency gives the value of the antenna resistance.

(d) Antenna resistance for a directional antenna system shall be measured at the point of common radio frequency input to the directional antenna system. The following conditions shall obtain:

(1) The antenna shall be finally ad-

justed for the required pattern.

(2) The reactance at the operating frequency and at the point of measurement shall be adjusted to zero or as near thereto as practical.

(3) Suitable radio-frequency bridge or other method shall be employed to determine the resistance and reactance at the point of common radio frequency

(4) Resistance and reactance measurements at approximately 5; 10, 15, and 20 kc. on each side of the operating frequency shall be made. The values measured shall be plotted and the resist-ance at the operating frequency determined in the same manner as set forth in paragraph (c) of this section.

(5) A permanently installed antenna ammeter shall be placed in each element of the system as well as at the point of

measurement of resistance.

(e) The license for a station of power of 5 kw or under which employs a directional antenna will specify the antenna resistance as 92.5 percent of that determined at the point of common input. The resistance specified for stations of a power over 5 kw will be 95 percent of that determined at the point of common input.

- § 3.55 Modulation. The percentage of modulation shall be maintained as high as possible consistent with good quality of transmission and in no case less than 85 percent on peaks nor more than 100 percent on negative peaks of frequent recurrence during any selection which is transmitted at the highest level of the program under consideration.
- § 3.56 Modulation monitors. (a) Each station shall have in operation. either at the transmitter or at the place the transmitter is controlled, a modulation monitor of a type approved by the Commission.

Note: Approved modulation monitors are included on the Commission's "Radio Equipment List, Part B. Aural Broadcast Equipment" Copies of this list are available for inspection at the Commission's office in Washington, D. C. and at each of its field offices.

(b) In the event that the modulation monitor becomes defective the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: Provided, That:

(1) Appropriate entries shall be made in the operating log of the station showing the date and time the monitor was removed from and restored to service.

(2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the monitor is found to be defective and immediately after the repaired or

replacement monitor has been installed and is functioning properly.

- (3) The degree of modulation of the station shall be monitored with a cathode ray oscilloscope or other acceptable means.
- (c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the above allowed period, informal request may be filed with the Engineer in Charge of the radio district in which the station is operating for such additional time as may be required to complete repairs of the defective instrument.
- § 3.57 Operating power maintenance of. (a) The operating power of each station shall be maintained as near as practicable to the licensed power and shall not exceed the limits of 5 percent above and 10 percent below the licensed power, except that in an emergency when due to causes beyond control of the licensee it becomes impossible to operate with full licensed power, the station may be operated with reduced power for a period not to exceed 10 days, provided the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified immediately after the emergency develops and also upon the resumption of licensed power.
- (b) In addition to maintaining the operating power within the above limitations, stations employing directional antenna systems shall maintain the ratio of the antenna currents in the elements of the system within 5 percent of that specified by the terms of the license or other instrument of authorization.
- § 3.58 Indicating instruments. .(a) Each standard broadcast station shall be equipped with indicating instruments which conform with the specifications set forth in § 3.39 for measuring the DC plate circuit current and voltage of the last radio frequency amplifier stage; the radio frequency base current of each antenna element; and, for stations employing directional antenna systems, the radio frequency current at the point of common input to the directional antenna.
- (b) In the event that any one of these indicating instruments becomes defective when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided*, That:
- (1) Appropriate entries shall be made in the operating log of the station showing the date and time the meter was removed from and restored to service.
- (2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the instrument is found to be defective and immediately after the repaired or replacement instrument has been installed and is functioning properly.
- (3) If the defective instrument is the antenna current meter of a nondirectional station which does not employ a remote antenna ammeter, or if the de-

fective instrument is the common point meter of a station which employs a directional antenna, and does not employ a remote common point meter, the operating power shall be determined by the indirect method in accordance with § 3.52 during the entire time the station is operated without the antenna current meter or common point meter. However, if a remote antenna ammeter or a remote common point meter is employed and the antenna current meter or common point meter becomes defective, the remote meter may be used in determining operating power by the direct method pending the return to service of the regular meter, provided other meters maintained at same value previously employed.

(c) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, informal request in accordance with § 1.332 (d) of this chapter may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

(d) Remote antenna ammeters and remote common point meters are not required therefore authority to operate without them is not necessary. However if a remote antenna ammeter or common point meter is employed and becomes defective, the antenna base currents may be read and logged once daily for each mode of operation, pending the return to service of the regular remote meter.

§ 3.59 Frequency tolerance. The operating frequency of each station shall be maintained within 20 cycles of the assigned frequency.

§ 3.60 Frequency monitor. (a) The licensee of each station shall have in operation, either at the transmitter or at the place where the transmitter is controlled, a frequency monitor of a type approved by the Commission which shall be independent of the frequency control of the transmitter.

Note: Approved frequency monitors are included on the Commission's "Radio Equipment List, Part B, Aural Broadcast Equipment" Copies of this list are available for inspection at the Commission's office in Washington, D. C. and at each of its field offices.

- (b) In the event that the frequency monitor becomes defective the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: Provided, That:
- (1) Appropriate entries shall be made in the operating log of the station showing the date and time the monitor was removed from and restored to service.
- (2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the monitor is found to be defective and immediately after the repaired or replacement monitor has been installed and is functioning properly.
- (3) The frequency of the station shall be measured by an external source at

least once each seven days and the results entered in the station log.

- (c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the above allowed period, informal request in accordance with § 1.332-(d) of this chapter may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.
- § 3.61 New equipment; restrictions. The Commission will authorize the installation of new transmitting equipment in a broadcast station or changes in the frequency control of an existing transmitter only if such equipment is so designed that there is reasonable assurance that the transmitter is capable of maintaining automatically the assigned frequency within the limits specified in § 3.59.
- § 3.62 Automatic frequency control equipment; authorization required. New automatic frequency control equipment and changes in existing automatic frequency control equipment that may affect the precision of frequency control or the operation of the transmitter shall be installed only upon authorization from the Commission.
- § 3.63 Auxiliary transmitter. Upon showing that a need exists for the use of an auxiliary transmitter in addition to the regular transmitter of a broadcast station, a license therefor may be issued: Provided, That:
- (a) An auxiliary transmitter may be installed either at the same location as the main transmitter or at another location.
- (b) A licensed operator shall be in control whenever an auxiliary transmitter is placed in operation.
- ter is placed in operation.

 (c) The auxiliary transmitter shall be maintained so that it may be put into immediate operation at any time for the following purposes:
- (1) The transmission of the regular programs upon the failure of the main transmitter.
- (2) The transmission of regular programs during maintenance or modification work on the main transmitter necessitating discontinuance of its operation for a period not to exceed five days. Where such operation is required for periods in excess of five days an informal application shall be made.
- (3) Upon request by a duly authorized representative of the Commission.
- (d) The auxiliary transmitter shall be tested at least once each week to determine that it is in proper operating condition and that it is adjusted to the proper frequency, except that in the case of operation in accordance with paragraph (c) of this section during any week, the test in that week may be omitted provided the operation under paragraph (c) of this section is satisfactory. Tests shall be conducted only between midnight and 9 a.m., local standard time. A record shall be kept of the time and result of each test. Such records shall be retained for a period of two years.
- (e) The auxiliary transmitter shall be equipped with satisfactory control equip-

ment which will enable the maintenance of the frequency emitted by the station within the limits prescribed by the regu-

lations in this part.

(f) An auxiliary transmitter which is licensed at a geographical location different from that of the main transmitter shall be equipped with a frequency control which will automatically hold the frequency within the limits prescribed by the regulations in this part without any manual adjustment during operation or when it is being put into operation.

(g) The operating power of an auxiliary transmitter may be less than the authorized power, but in no event shall it be greater than such power.

(h) All regulations as to safety requirements and spurious emissions applying to broadcast transmitting equipment shall apply also to an auxiliary transmitter.

§ 3.64 Alternate main transmitters. The licensee of a standard broadcast station may be licensed for alternate main transmitters provided that a technical need for such alternate transmitters is shown, such as licensees maintaining 24-hour schedule and needing alternate operations for maintenance, or where developmental work requires alternate operation, and that the following conditions are met:

(a) Both transmitters are located at the same place.

(b) The transmitters have the same power rating except at stations operating with different daytime and night-time power when it shall be permissible to employ transmitters of power ratings appropriate to either the licensed daytime or nighttime power.

(c) The external effects from both transmitters are substantially the same as to frequency stability, reliability of operation, radio harmonics and other spurious emissions, audio frequency range and audio harmonic generation in the transmitter

§ 3.65 Antenna structure, marking and lighting. Where an antenna structure(s) is required to be painted or lighted see § 17.37, Inspection of tower lights and associated control equipment; § 17.39, Cleaning and repainting; § 17.40, Time when lights shall be exhibited, § 17.41, Spare lamps; and § 17.42, Lighting equipment; of Part 17 of this chapter (Construction, Marking and Lighting of Antenna Structures).

§ 3.66 Remote control operation. (a) A station which is authorized for non-directional operation with power of 10 kilowatts or less may, upon prior authorization from the Commission, be operated by remote control at the point(s) which shall be specified in the station license. An application for authorization to operate by remote control may be made as a part of an application for construction permit or license, or modification thereof by specifying the proposed remote control point(s) Operation by remote control shall be subject to the following conditions:

(1) The equipment at the operating and transmitting positions shall be so installed and protected that it is not

accessible to or capable of operation by persons other than those duly authorized by the licensee.

(2) The control circuits from the operating position to the transmitter shall provide positive on and off control and shall be such that open circuits, short circuits, grounds or other line faults will not actuate the transmitter and any fault causing loss of such control will automatically place the transmitter in an inoperative condition.

(3) Control and monitoring equipment shall be installed so as to allow the licensed operator either at the remote control point or at the transmitter, to perform all of the functions in a manner required by the Commission's rules.

OPERATION

§ 3.71 Minimum operating schedule. Except Sundays, the licensee of each standard broadcast station shall maintain a minimum operating schedule of two-thirds of the total hours that it is authorized to operate between 6 a.m. and 6 p. m., local standard time, and twothirds of the total hours it is authorized to operate between 6 p. m. and midnight, local standard time, except that in an emergency wheh, due to causes beyond the control of the licensee, it becomes impossible to continue operating, the station may cease operation for a period of not to exceed 10 days, provided that the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified in writing ımmediately after the emergency develops.

§ 3.72 Operation during experimental period. The licensee of each standard broadcast station shall operate or refrain from operating its station during the experimental period as directed by the Commission in order to facilitate frequency measurement or for the determination of interference.

§ 3.73 Specified hours. If the license of a station specifies the hours of operation, the schedule so specified shall be adhered to except as provided in §§ 3.71 and 3.72.

§ 3.74 Sharing time. If the licenses of stations authorized to share time do not specify hours of operation, the licensees shall endeavor to reach an agreement for a definite schedule of periods of time to be used by each. Such agreement shall be in writing and each licensee shall file the same in triplicate original with each application to the Commission for renewal of license. If and when such written agreements are properly filed in conformity with this section the file mark of the Commission will be affixed thereto, one copy will be retained by the Commission, one copy forwarded to the Engineer in Charge of the radio district in which the station is located, and one copy returned to the licensee to be posted with the station license and considered as a part thereof. If the license specifies a proportionate time division, the agreement shall maintain this proportion. If no proportionate time division is specified in the license, the licensees shall agree upon a division of time: Such division of time shall not

include simultaneous operation of the stations unless specifically authorized by the terms of the license.

§ 3.75 Sharing time; equivalence of day and night hours. For the purpose of determining the proportionate division of time of the broadcast day for sharing time stations 1 night hour shall be considered the equivalent of 2 day hours.

§ 3.76 Sharing time; experimental period. If the license of a station authorized to share time does not specify the hours of operation, the station may be operated for the transmission of regular programs during the experimental period provided an agreement thereto is reached with the other stations with which the broadcast day is shared and further provided such operation is not in conflict with § 3.72. Time-sharing agreements for operation during the experimental period need not be submitted to the Commission.

§ 3.77 Sharing time; departure from regular schedule. A departure from the regular operating schedule set forth in a time-sharing agreement will be permitted only in cases where an agreement to that effect is reduced to writing, is signed by the licensees of the stations affected thereby and filed in triplicate by each licensee with the Commission prior to the time of the proposed change. If time is of the essence, the actual departure in operating schedule may precede the actual filing of written agreement, provided appropriate notice is sent to the Commission and the Engineer in Charge of the radio district in which the station is located.

§ 3.78 Sharing time stations; notification to Commission. If the licensees of stations authorized to share time are unable to agree on a division of time, the Commission shall be so notified by statement to that effect filed with the applications for renewals of licenses. Upon receipt of such statement the Commission will designate the applications for a hearing and, pending such hearing, the operating schedule previously adhered to shall remain in full force and effect.

§ 3.79 License to specify sunrise and sunset hours. If the licensee of a broadcast station is required to commence or cease operation, or to change the mode of operation of the station at the times of sunrise and sunset at any particular location, the controlling times for each month of the year are set forth in the station's instrument of authorization. Uniform sunrise and sunset times are specified for all of the days of each month, based upon the actual times of sunrise and sunset for the fifteenth day of that month adjusted to the nearest quarter hour. In accordance with a standardized procedure described therein, actual sunrise and sunrise and sunset times are derived by interpolation in the tables of the 1946 American Nautical Almanac, issued by the Nautical Almanac Office of the United States Naval Observatory.

§ 3.80. Secondary station; filing of operating schedule. The licensee of a secondary station authorized to operate

limited time and which may resume operation at the time the dominant station (or stations) on the same channel ceases operation shall, with each application for renewal of license, file in triplicate a copy of its regular operating schedule, bearing a signed notation by the licensee of the dominant station of its objection or lack of objection thereto. Upon approval of such operating schedule, the Commission will affix its file mark and return one copy to the licensee authorized to operate limited time, which shall be posted with the station license and considered as a part thereof. Departure from said operating schedule will be permitted only in accordance with the procedure set forth in § 3.77.

- § 3.81 Secondary station, failure to reach agreement. If the licensee of a secondary station authorized to operate limited time and a dominant station on a channel are unable to agree upon a definite time for resumption of operation by the station authorized limited time, the Commission shall be so notified by the licensee of the station authorized limited time. After receipt of such statement the Commission will designate for hearing the applications of both stations for renewal of license, and pending the hearing the schedule previously adhered to shall remain in full force and effect.
- § 3.82 Departure from schedule; material violation. In all cases where a station licensee is required to prepare and file an operating schedule, any deviation or departure from such schedule, except as herein authorized, shall be considered as a violation of a material term of the license.
- § 3.83 Local standard time. All references herein to standard time or local standard time refer to local standard time as determined and fixed by the Interstate Commerce Commission,
- § 3.84 Daylight saving time. If local time is changed from standard time to daylight saving time at the location of all stations sharing time on the same channel, the hours of operation of all such stations on that channel shall be understood to refer to daylight saving time, and not standard time, as long as daylight saving time is observed at such locations. This provision shall govern when the time is changed by provision of law or general observance of daylight saving time by the various communities, and when the time of operation of such stations is specified in the license or is mutually agreed upon by the licensees: Provided, however That when the license specifies average time of sunrise and sunset, local standard time shall be observed. In no event shall a station licensed for daytime only operate on regular schedule prior to local sunrise, or shall a station licensed for greater daytime power than nighttime power or for a different radiation pattern for daytime operation than for nighttime operation operate with the daytime power or radiation pattern prior to local sunrise.
- § 3.85 Changes in time; agreement between licensees. Where the local time is not changed from standard time to daylight saving time at the location of all stations sharing time on the same

channel, the hours of operation of such stations shall be understood to have reference to standard time, and not daylight saving time, unless said licensees mutually agree upon a new schedule which shall be effective only while daylight saving time is observed at the location of some of these stations.

§ 3.86 Local standard time; license provisions. The time of operation of any broadcast station which does not share time with other stations on the same channel shall be understood to have reference to local standard time unless modification of such license with respect to hours of operation is authorized by the Commission.

§ 3.87 Program transmissions prior to local sunrise. (a) The provisions of §§ 3.6, 3.8, 3.9, 3.10, 3.23, 3.79, and 3.84 shall not prevent the transmission of programs between 4 o'clock a. m., local standard time, and local sunrise, of standard broadcast stations with their authorized daytime facilities: Provided, That the provisions of this section shall not extend to:

(1) Stations regularly sharing time during daytime hours either under licenses pursuant to which time-sharing agreements have been entered into or licenses specifying hours of operation, unless time-sharing agreements have been reached covering such operation prior to local sunrise. Sections 3.74, 3.77, and 3.78 shall be applicable to such agreements.

(2) Any Class II station causing interference, as determined by the standard broadcast Technical Standards of this subpart, by use of its daytime facilities within the 0.5 mv/m 50 percent skywave contour of any Class I station either of the United States or of any country party to the North American Regional Broadcasting Agreement, except (i) where the Class I station is located east of the Class II station in which case operation may begin at local sunrise at the Class I station; (ii) where an agreement has been reached with the Class I station to begin operation prior to local sunrise.

(3) Operation by use of its daytime facilities of any Class II station on any Class II—A channel not assigned to the United States under the North American Regional Broadcasting Agreement.

(b) Any station operating during such hours receiving notice from the Commission that undue interference is caused shall refrain from such operation during such hours pending further notice from the Commission.

(q) Nothing contained in outstanding instruments of authorization for such stations shall prohibit such operation except as herein provided.

(d) The period 4 a.m. to 6 a.m., local standard time, shall not be included in determining compliance with § 3.71.

§ 3.88 Blanketing interference. The licensee of each broadcast station is required to satisfy all reasonable complaints of blanketing interference within the 1 v/m contour.

§ 3.89 Use of frequency and modulation monitors at auxiliary transmitters. (a) The following shall govern the

installation of approved frequency and modulation monitors at auxiliary transmitters:

- (1) In case the auxiliary transmitter location is at a site different from that of the main transmitter, an approved frequency monitor shall be installed at the auxiliary transmitter, except when the frequency of the auxiliary transmitter can be monitored by means of the frequency monitor at the main transmitter.
- (2) The provision that the frequency monitor may be located at the site of the main transmitter shall not relieve the obligation that the frequency deviation of the auxiliary transmitter shall be maintained within 20 cycles.
- (3) Installation of an approved modulation monitor at the location of the auxiliary transmitter, when different from that of the main transmitter, is optional with the licensee. However, when it is necessary to operate the auxiliary transmitter beyond 2 calendar days, a modulation monitor shall be installed and operated at the auxiliary transmitter. The monitor (if taken from the main transmitter) shall be resulted at the main transmitter immediately upon resumption of operation of the main transmitter.
- (4) In all cases where the auxiliary transmitter and the main transmitter have the same location, the same frequency and modulation monitor may be used for monitoring both transmitters, provided they are so arranged as to be switched readily from one transmitter to the other.

§ 3.90 [Reserved.]

§ 3.91 Discontinuance of operation. The licensee of each station shall notify the Commission in Washington, D. C., and the Engineer in Charge of the radio district where such station is located of permanent discontinuance of operation at least two days before operation is discontinued. The licensee, shall, in addition, immediately forward the station license and other instruments of authorization to the Washington, D. C., office of the Commission for cancellation.

§ 3.92 Station and operator licenses; posting of. (a) The station license and any other instrument of station authorization shall be posted in a conspicuous place and in such manner that all terms are visible, at the place the licensee considers to be the principal control point of the transmitter. At all other control points listed on the station authorization, a photocopy of the station license and other instruments of station authorization shall be posted.

(b) The original operator license, or FCC Form 759, of each station operator shall be posted at the place where he is on duty as an operator.

§ 3.93 Operator requirements. (a) One or more radio operators holding a valid radiotelephone first-class operator license, except as provided below, shall be in actual charge of the transmitting apparatus and shall be on duty either at the transmitter location or remote control point.

(b) A station which is authorized for non-directional operation with power of 10 kilowatts or less may be operated by persons holding commercial radio operator license of any class, except an aircraft radiotelephone operator authorization or a temporary limited radiotelegraph second-class operator license, when the equipment is so designed that the stability of the frequency is maintained by the transmitter itself within the limits of tolerance specified, and none of the operations, except those specified in subparagraphs (1) through (4) of this paragraph, necessary to be performed during the course of normal operation may cause off-frequency operation or result in any unauthorized radiation. (A person holding any class of radio operator license or permit who is authorized thereunder to perform limited operation of a standard broadcast station may, when a Conelrad Radio Alert 1s called, make adjustments necessary to effect operation on a Conelrad authorization: Provided, That the station's fulltime radiotelephone firstclass operator shall have previously instructed such person in the adjustments to the transmitter which are necessary to accomplish Conelrad operation.) Adjustments of transmitting equipment by such operators, except when under the immediate, supervision of a radiotelephone first-class operator, shall be limited to the following:

(1) Those necessary to commence or terminate transmitter emissions as a routine matter.

(2) Those external adjustments that

may be required as a result of variations of primary power supply.

(3) Those external adjustments which may be necessary to insure modulation

within the limits required.

(4) Those adjustments necessary to effect any change in operating power which may be required by the station's instrument of authorization.

Should the transmitting apparatus be observed to be operating in a manner inconsistent with the station's instrument of authorization and none of the above adjustments are effective in bringing it into proper operation, a person holding other than a radiotelephone first-class operator license and not acting under the immediate supervision of radiotelephone first-class operator, shall be required to terminate the station's emissions.

(c) The licensee of a station which is operated by one or more operators holding other than a radiotelephone first-class operator license shall have one or more operators holding a radiotelephone first-class operator license in regular full-time employment at the station whose primary duties shall be to effect and insure the proper functioning of the transmitting equipment. In the event that the licensee also operates an FM broadcast station in the same community, a regular full-time radiotelephone first-class operator or operators employed in connection with the standard broadcast station may concurrently be employed to satisfy the requirements of § 3.265 (c) or § 3.565 (c) ~ Provided, That the duties of such operator or operators concerning the FM broadcast transmitting equipment shall in nowise interfere with the proper per-

formance of his duties with respect to the standard broadcast transmitter.

(d) The licensed operator on duty and in charge of a standard broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another radio station or stations in accordance with the class of operator's license which he holds and the rules and regulations governing such other stations: Provided, however That such duties shall in nowise interfere with the proper operation of the standard broadcast transmitter:

§ 3.94 Period of construction. Each construction permit for a radio station in the standard broadcast service will specify a maximum of 60 days from the date of granting thereof as the time within which construction of the station shall begin, and a maximum of six months thereafter as the time within which construction shall be completed and with the station ready for operation, unless otherwise determined by the Commission upon proper showing in any particular case.

§ 3.95 Equipment tests. (a) During the process of construction of a standard broadcast station, the permittee, after notifying the Commission and Engineer in Charge of the radio district in which the station is located, may without further authority of the Commission, conduct equipment tests during the experimental period for the purpose of such adjustments and measurements as may be necessary to assure compliance with the terms of the construction permit, the technical provisions of the application therefor, the rules and regulations, and the applicable engineering standards. In addition, the Commission may authorize equipment tests other than during the experimental period if such operation is shown to be desirable to the proper completion of construction and adjustment of the transmitting equipment and antenna system. An informal application for such authority, giving full details regarding the need for such tests, shall be filed with the Commission at least two (2) days (not including Sundays and Saturdays and legal holidays when the offices of the Commission are not open) prior to the date on which it is desired to begin such operation.

(b) The Commission may notify the permittee to conduct no tests or may cancel, suspend, or change the date for the beginning of equipment tests as and when such action may appear to be in the public interest, convenience, and necessity.

(c) Equipment tests may be continued so long as the construction permit shall remain valid and shall be conducted only during the experimental period (12 midnight to local sunrise) unless otherwise specifically authorized.

(d) Inspection of a station will ordinarily be required during the equipment test period and before the commencement of program tests. After construction and after adjustments and measurements have been completed to show compliance with the terms of the construction permit, the technical provisions of the application therefor, the rules and regulations and the applicable engineer-

ing standards, the permittee should notify the Engineer in Charge of the radio district in which the station is located that it is ready for inspection.

(e) The authorization for tests embodied in this section, shall not be construed as constituting a license to operate but as a necessary part of construction.

§ 3.96 Program tests completion of construction of a standard broadcast station in accordance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations and applicable engineering standards and when an application for station license has been filed showing the station to be in satisfactory operating condition, the permittee may request authority to conduct program tests: Provided, That such request shall be filed with the Commission at least ten (10) days prior to the date on which it is desired to begin such operation and that the Engineer in Charge of the radio district in which the station is located is notified. All data necessary to show compliance with the terms and conditions of the construction permit'must be filed with the license application. If the station is using a directional antenna, a proof of performance must also be filed as required by § 3.33 (b)

(b) Program tests shall not commence until specific Commission authority is received. The Commission reserves the right to change the date of the beginning of such tests or to suspend or revoke the authority for program tests as and when such action may appear to be in the public interest, convenience, and necessity.

(c) Unless sooner suspended or revoked program test authority continues valid during Commission consideration of the application for license and during this period further extension of the construction permit is not required. Program test authority shall be automatically terminated by final determination upon the application for station license.

(d) All operation on program test authority shall be in strict compliance with the rules governing standard broadcast stations and in strict accordance with representations made in the application for license pursuant to which the tests were authorized.

(e) The granting of program test authority shall not be construed as approval by the Commission of the application for station license.

§ 3.97 Station inspection. The 11-censee of any radio station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

OTHER OPERATING REQUIREMENTS

§ 3.111 Logs. The licensee or permittee of each standard broadcast station shall maintain program and operating logs and shall require entries to be made as follows:

(a) In the program log:

(1) An entry of the time each station identification announcement (call letters and location) is made.

(2) An entry briefly describing each program broadcast, such as "music,"

"drama," "speech," etc., together with the name or title thereof, and the sponsor's name, with the time of the beginning and ending of the complete program. If a mechanical record is used, the entry shall show the exact nature thereof, such as "record," "transcription," etc., and the time it is announced as a mechanical record. If a speech is made by a political candidate, the name and political affiliations of such speaker shall be entered.

(3) An entry showing that each sponsored program broadcast has been announced as sponsored, paid for, or

furnished by the sponsor.

(4) An entry showing, for each program of network origin, the name of the network originating the program.

(b) In the operating log:

- (1) An entry of the time the station begins to supply power to the antenna, and the time it stops.
- (2) An entry of the time the program begins and ends.
- (3) An entry of each interruption to the carrier wave, its cause, and duration.
 (4) An entry of the following each 30
- minutes:
 (i) Operating constants of last radio stage (total plate current and plate volt-
- age).
 (ii) Antenna current.
 - (iii) Frequency monitor reading ..
- (iv) Temperature of crystal control chamber if thermometer is used.
- (5) Log of experimental operation during experimental period. (If regular operation is maintained during this period, the above logs shall be kept.)

(i) A log must be kept of all operation during the experimental period. If the entries required above are not applicable thereto, then the entries shall be made so as to fully describe the operation.

- (c) Where an antenna structure(s) is required to be illuminated see § 17.38, Recording of tower light inspections in the station record, of Part 17 of this chapter (Construction, Marking and Lighting of Antenna Structures)
- § 3.112 Logs: retention of. Logs of standard broadcast stations shall be retained by the licensee or permittee for a period of two years: Provided, however That logs involving communications incident to a disaster or which include communications incident to or involved in an investigation by the Commission and concerning which the licensee or permittee has been notified, shall be retained by the licensee or permittee until he is specifically authorized in writing by the Commission to destroy them: Provided, further That logs incident to or involved in any claim or complaint of which the licensee or permittee has notice shall be retained by the licensee or permittee until such claim or complaint has been fully satisfied or until the same has been barred by statute limiting the time for the filing of suits upon such

Note: Application forms for licenses and other authorizations require that certain operating and program data be supplied. It is suggested that these application forms be kept in mind in connection with maintenance of station program and operating records.

- § 3.113 Logs; by whom kept. Each log shall be kept by the person or persons competent to do so, having actual knowledge of the facts required, who shall sign the log when starting duty and again when going off duty. The logs shall be made available upon request by an authorized representative of the Commission.
- § 3.114 Log form. The log shall be kept in an orderly manner, in suitable form, and in such detail that the data required for the particular class of station concerned are readily available. Key letters or abbreviations may be used if proper meaning or explanation is contained elsewhere in the log.
- § 3.115 Correction of logs. No log or portion thereof shall be erased, obliterated, or willfully destroyed within the period of retention provided by the rules. Any necessary correction may be made only by the person originating the entry who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction.
- § 3.116 Rough logs. Rough logs may be transcribed into condensed form, but in such case the original log or memoranda and all portions thereof shall be preserved and made a part of the complete log.
- § 3.117 Station identification. (a) A licensee of a standard broadcast station shall make station identification announcement (call letters and location) at the beginning and ending of each time of operation and during operation (1) on the hour and (2) either on the half hour or at the quarter hour following the hour and at the quarter hour preceding the next hour: Provided,
- (b) Such identification announcement need not be made on the hour when to make such announcement would interrupt a single consecutive speech, play, religious service, symphony concert, or operatic production of longer duration than 30 minutes. In such cases the identification announcement shall be made at the beginning of the program, at the first interruption of the entertainment continuity, and at the conclusion of the program.
- (c) Such identification announcement need not be made on the half hour or quarter hours when to make such announcement would interrupt a single consecutive speech, play, religious servece, symphony concert, or operatic production. In such cases an identification announcement shall be made at the first interruption of the entertainment continuity and at the conclusion of the program: Provided, That an announcement within 5 minutes of the times specified in paragraph (a) (2) of this section will satisfy the requirements of identification announcements.
- (d) In the case of variety show programs, baseball game broadcasts, or similar programs of longer duration than 30 minutes, the identification announcement shall be made within 5 minutes of the hour and of the times specified in paragraph (a) (2) of this section.
- (e) In the case of all other programs the identification announcement shall be made within 2 minutes of the hour and

of the times specified in paragraph (a) (2) of this section.

- (f) In making the identification announcement the call letters shall be given only on the channel of the station identified thereby, except as otherwise provided in § 3.287 of the Commission's rules governing FM broadcast stations.
- § 3.118 Mechanical records. (a) Each program broadcast which consists in whole or in part of one or more mechanical reproductions shall be announced in the manner and to the extent set out in this section.
- (1) Each such program of longer duration than 30 minutes, consisting in whole or in part of one or more mechanical reproductions, shall be identified by appropriate announcement at the beginning of the program, at each 30-minute interval and at the conclusion of the program: Provided, however That the identifying announcement at each 30-minute interval is not required in case of a mechanical reproduction consisting of a continuous uninterrupted speech, play, religious service, symphony concert, or operatic production of longer than 30 minutes.
- (2) Each such program of a longer duration than 5 minutes and not in excess of 30 minutes, consisting in whole or in part of one or more mechanical reproductions, shall be identified by an appropriate announcement at the beginning and end of the program.
- (3) Each such program of 5 minutes or less, consisting in whole or in part of mechanical reproductions, shall be identified by appropriate announcement immediately preceding the use thereof: *Provided, however*, That each such program of one minute or less need not be announced as such.
- (4) In case a mechanical reproduction is used for background music, sound effects, station identification, program identification (theme music of short duration) or identification of the sponsorship of the program proper, no announcement of the mechanical reproduction is required.
- (5) The exact form of identifying announcement is not prescribed, but the language shall be clear and in terms commonly used and understood. A licensee shall not attempt affirmatively to create the impression that any program being broadcast by mechanical reproduction consists of live talent.
- (6) During the annual periods in which daylight saving time will be effective the requirements of this section are waived with respect to network programs, transcribed and rebroadcast one hour later because of the time differential resulting from the adoption of daylight saving time in some areas, this waiver being applicable whether the offthe-line recording is made by the network itself at one of its key stations or by an individual station, but only when the off-the-line recording is for broadcast one hour later by those stations which operate on standard time. Furthermore, each station which broadcasts network programs one hour later in accordance with this waiver shall make an appropriate announcement at least once each day between the hours of 10 a.m.

and 10 p. m., stating that some or all of the network programs which are broadcast by that station are delayed broadcasts by means of transcription, and indicating whether the transcriptions have been made by the network or the individual station. A network organization or individual station taking advantage of this waiver should so advise the Commission.

§ 3.119 Sponsored programs; announcement of. (a) In the case of each program for the broadcasting of which money, services, or other valuable consideration is either directly or indirectly paid or promised to, or charged or received by, any radio broadcast station, the station broadcasting such program shall make, or cause to be made, an appropriate announcement that the program is sponsored, paid for, or furnished, either in whole or in part.

(b) In the case of any political program or any program involving the discussion of public controversial issues for which any records, transcriptions, talent, scripts, or other material or services of any kind are furnished, either directly or indirectly, to a station as an inducement to the broadcasting of such program, an announcement shall be made both at the beginning and conclusion of such program on which such material or services are used that such records. transcriptions, talent, scripts, or other material or services have been furnished to such station in connection with the broadcasting of such program: Provided. however That only one such announcement need be made in the case of any such program of 5 minutes' duration or less, which announcement may be made either at the beginning or the conclusion of the program.

(c) The announcement required by this section shall fully and fairly disclose the true identity of the person or persons by whom or in whose behalf such payment is made or promised, or from whom or in whose behalf such services or other valuable consideration is received, or by whom the material or services referred to in paragraph (b) of this section are furnished. Where an agent or other person contracts or otherwise makes arrangements with a station on behalf of another, and such fact is known to the station, the announcement shall disclose the identity of the person or persons in whose behalf such agent is acting instead of the name of such agent.

(d) In the case of any program, other than a program advertising commercial products or services, which is sponsored. paid for or furnished, either in whole or in part, or for which material or services referred to in paragraph (b) of this section are furnished, by a corporation, committee, association or other unincorporated group, the announcement required by this section shall disclose the name of such corporation, committee, association or other unincorporated group. In each such case the station shall require that a list of the chief executive officers or members of the executive committee or of the board of directors of the corporation, committee, association or other unincorporated group shall be made available for public inspection at one of the radio stations carrying the program.

(e) In the case of programs advertising commercial products or services, an announcement stating the sponsor's corporate or trade name or the name of the sponsor's product, shall be deemed sufficient for the purposes of this section and only one such announcement need be made at any time during the course of the program.

§ 3.120 Broadcasts by candidates for public office—(a) Definitions. A "legally qualified candidate" means any person who has publicly announced that he is a candidate for nomination by a convention of a political party or for nomination or election in a primary, special, or general election, municipal, county, State or national, and who meets the qualifications prescribed by the applicable laws to hold the office for which he is a candidate, so that he may be voted for by the electorate directly or by means of delegates or electors, and who:

(1) Has qualified for a place on the ballot or

(2) Is eligible under the applicable law to be voted for by sticker, by writing in his name on the ballot, or other method, and (1) has been duly nominated by a political party which is commonly known and regarded as such, or (ii) makes a substantial showing that he is a bona fide candidate for nomination or office, as the case may be.

(b) General requirements. No station licensee is required to permit the use of its facilities by any legally qualified candidate for public office, but if any licensee shall permit any such candidate to use its facilities, it shall afford equal opportunities to all other such candidates for that office to use such facilities: Provided, That such licensee shall have no power of censorship over the material broadcast by any such candidate,

(c) Rates and practices. (1) rates, if any, charged all such candidates for the same office shall be uniform and shall not be rebated by any means direct. or indirect. A candidate shall, in each case, be charged no more than the rate the station would charge if the candidate were a commercial advertiser whose advertising was directed to promoting its business within the same area as that encompassed by the particular office for which such person is a candidate. All discount privileges otherwise offered by a station to commercial advertisers shall be available upon equal terms to all candidates for public office.

(2) In making time available to candidates for public office no licensee shall make any discrimination between candidates in charges, practices, regulations. facilities, or services for or in connection with the service rendered pursuant to this part, or make or give any preference to any candidate for public office or subject any such candidate to any prejudice or disadvantage; nor shall any licensee make any contract or other agreement which shall have the effect of permitting any legally qualified candidate for any public office to broadcast to the exclusion of other legally qualified candidates for the same public office.

(d) Records; inspection. Every licensee shall keep and permit public inspection of a complete record of all requests for broadcast time made by or on behalf of candidates for public office, together with an appropriate notation showing the disposition made by the licensee of such requests, and the charges made, if any, if request is granted. Such records shall be retained for a period of two years.

§ 3.121 Rebroadcast. (a) The term "rebroadcast" means reception by radio of the program of a radio station, and the simultaneous or subsequent retransmission of such program by a broadcast station.

Note 1. As used in § 3.121, program includes any complete program or part thereof, or any signals if other than A-3 emission.

Note 2: In case a program is transmitted from its point of origin to a broadcast station entirely by telephone facilities in which a section of such transmission is by radio, the broadcasting of this program is not considered a rebroadcast.

(b) The licensee of a standard broadcast station may, without further authority of the Commission, rebroadcast the program of a United States standard or FM broadcast station, provided the Commission is notified of the call letters of each station rebroadcast and the licensee certifies that express authority has been received from the licensee of the station originating the program.

Note: The notice and certification of consent shall be given within 3 days of any single rebroadcast, but in case of the regular practice of rebroadcasting certain programs of a standard broadcast station several times during a license period, notice and certification of consent shall be given for the ensuing license period with the application for renewal of license, or at the beginning of such rebroadcast practice if begun during a license period.

(c) (1) The licensee of the standard broadcast station located within a state or the District of Columbia, may, without further authority of the Commission rebroadcast on a noncommercial basis a noncommercial program of a United States international broadcast station.

(2) The licensee of a standard broadcast station located in any territory or insular possession of the United States may, without further authority of the Commission, rebroadcast any program of a United States international broadcast station.

(3) In the case of any rebroadcast under the provisions of this paragraph, the Commission shall be notified of the call letters of each station whose programs are rebroadcast and the licensee shall certify that express authority has been received from the licensee of the station originating the program.

(d) No licensee of a standard broadcast station shall rebroadcast the program of any other class of United States radio station without written authority having first been obtained from the Commission upon application accompanied by written consent or certification of consent of the licensee of the station originating the program.

Note 1. The broadcasting of a program relayed by a remote pick-up broadcast station

(§ 4.401 of this chapter) is not considered a rebroadcast.

Note 2: Informal application may be employed.

NOTE 3: By Order No. 82, dated and effective June 24, 1941, until further order of the Commission, § 3121 (d) is suspended only insofar as it requires prior written authority of the Commission for the rebroadcasting of programs originated for that express purpose by United States Government radio stations.

- by several standard broadcast stations, such as a chain rebroadcast, the person legally responsible for distributing the program or the network facilities may obtain the necessary authorization for the entire rebroadcast both from the Commission and from the person or licensee of the station originating the program.
- (f) Attention is directed to section 325 (b) of the Communications Act of 1934, which reads as follows:
- No person shall be permitted to locate, use, or maintain a radio broadcast studio or other place or apparatus from which or whereby sound waves are converted into electrical energy, or mechanical or physical reproduction of sound waves produced, and caused to be transmitted or delivered to a radio station in a foreign country for the purpose of being broadcast from any radio station there, having a power output of sufficient intensity, and/or being so located geographically that its emissions may be received consistently in the United States, without first obtaining a permit from the Commission upon proper application therefor. (See § 1.327 of this chapter.)
- § 3.122 Lotteries. (a) An application for construction permit, license, renewal of license, or any other authorization for the operation of a broadcast station, will not be granted where the applicant proposes to follow or continue to follow a policy or practice of broadcasting or permitting "the broadcasting of, any advertisement of or information concerning any lottery, gift enterprise, or similar scheme, offering prizes dependent in whole or in part upon lot or chance; or any list of the prizes drawn or awarded by means of any such lottery. gift enterprise, or scheme, whether said list contains any part or all of such prizes." (See 18 U.S. C. 1304.)
- (b) The determination whether a particular program comes within the provisions of paragraph (a) of this section depends on the facts of each case. However, the Commission will in any event consider that a program comes within the provisions of paragraph (a) of this section if in connection with such program a prize consisting of money or thing of value is awarded to any person whose selection is dependent in whole or in part upon lot or chance, if as a condition of winning or competing for such prize, such winner or winners are required to furnish any money or thing of value or are required to have in their possession any product sold, manufactured, furnished or distributed by a sponsor of a program broadcast on the station in question.

LICENSING POLICIES

§ 3.131 Exclusive affiliation of station. No license shall be granted to a standard broadcast station having any contract,

arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, broadcasting the programs of any other network organization. (The term "network organization" as used herein includes national and regional network organizations. See ch. VII, J, of Report on Chain Broadcasting.)

§ 3.132 Territorial exclusivity. No IIcense shall be granted to a standard broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which prevents or hinders another station serving substantially the same area from broadcasting the network's programs not taken by the former station, or which prevents or hinders another station serving a substantially different area from broadcasting any program of the network organization. This section shall not be construed to prohibit any contract, arrangement, or understanding between a station and a network organization pursuant to which the station is granted the first call in its primary serv--ice area upon the programs of the network organization.

§ 3.133 Term of affiliation. No license shall be granted to a standard broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which provides, by original term, provisions for renewal, or otherwise for the affiliation of the station with the network organization for a period longer than 2 years: Provided, That a contract, arrangement, or understanding for a period up to 2 years, may be entered into within six months prior to the commencement of such period.

§ 3.134 Option time. No license shall be granted to a standard broadcast station which options for network programs any time subject to call on less than 56 days' notice, or more time than a total of 3 hours within each of four segments of the broadcast day, as herein described. The broadcast day is divided into four segments, as follows: 8 a.m. to 1 p. m., 1 p. m. to 6 p. m., 6 p. m. to 11 p. m., 11 p. m. to 8 a. m. (These seg-ments are to be determined for each station in terms of local time at the location of the station but may remain constant throughout the year regardless of shifts from standard to daylight saving time or vice versa.) Such option may not be exclusive as against other network organizations and may not prevent or hinder the station from optioning or selling any or all of the time covered by the option, or other time, to other network organizations.

Nore 1: As used in this section, an option is any contract, arrangement, or understanding, express or implied, between a station and a network organization which prevents or hinders the station from scheduling programs before the network agrees to utilize the time during which such programs are scheduled, or which requires the station to clear time already scheduled when the network organization seeks to utilize the time.

Note 2: All time options permitted under this section must be for specified clock hours, expressed in terms of any time system set

forth in the contract agreed upon by the station and network organization. Shifts from daylight saving to standard time or vice versa may or may not shift the specified hours correspondingly as agreed by the station and network organization.

§ 3.135 Right to reject programs. No license shall be granted to a standard broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which (a) with respect to programs offered pursuant to an affiliation contract, prevents or hinders the station from rejecting or refusing network programs which the station reasonably believes to be unsatisfactory or unsuitable; or which (b) with respect to network programs so offered or already contracted for, prevents the station from rejecting or refusing any program which, in its opinion, is contrary to the public interest, or from substituting a program of outstanding local or national importance.

§ 3.136 Network, ownership of stations. No license shall be granted to a network organization, or to any person directly or indirectly controlled by or under common control with a network organization, for more than one standard broadcast station where one of the stations covers substantially the service area of the other station, or for any standard broadcast station in any locality where the existing standard broadcast stations are so few or of such unequal desirability (in terms of coverage, power, frequency, or other related matters) that competition would be substantially restrained by such licensing. (The word "control" as used herein is not limited to full control but includes such a measure of control as would substantially affect the availability of the station to other networks.)

Note: Effective date of this section with respect to any station may be extended from time to time in order to permit the orderly disposition of properties; and it shall be suspended indefinitely with respect to regional network organizations.

§ 3.137 Dual network operation. No license shall be issued to a standard broadcast station affiliated with a network organization which maintains more than one network: Provided, That this section shall not be applicable if such networks are not operated simultaneously, or if there is no substantial overlap in the territory served by the group of stations comprising each such network.

§ 3.138 Control by networks of station rates. No license shall be granted to a standard broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, fixing or altering its rates for the sale of broadcast time for other than the network's programs.

§ 3.139 Special rules relating to contracts providing for reservation of time upon sale of a station. (a) No license, renewal of license, assignment of license, or transfer of control of a corporate licensee shall be granted or authorized to a standard broadcast station which has

a contract, arrangement or understanding, express or implied, pursuant to which, as consideration or partial consideration for the assignment of license or transfer of control, the assignor of a station license or the transferor of stock. where transfer of a corporate licensee is involved, or the nominee of such assignor or transferor retains any right of reversion of the license or any right to the reassignment of the license in the future, or reserves the right to use the facilities of the station for any period whatsoever.

(b) In the case of assignment of license or transfer of control of a corporate licensee approved by the Commission before the effective date of this section, February 15, 1949, involving a contract, arrangement or understanding of the type covered by paragraph (a) of this section and the existence and terms of which were fully disclosed to the Commission at the time of execution, the Commission will give consideration to the issuance of a license despite the existence of such contract, arrangement or understanding, if the parties thereto modify such contract within 6 months from the effective date of this section. Such modifications will be considered on the facts of each case but no such modification will be approved unless the modified contract contains at least the following provisions:

(1) A maximum limitation of the time subject to reservation so that no more than 12 hours per week shall be subject to reservation, of which no more than 4 hours shall be on any given day.

- (2) A clause providing that the licensee reserves the right to reject or refuse programs which he reasonably believes to be unsatisfactory or unsuitable or for which, in his opinion, a program of outstanding local or national importance should be substituted, but provision may be made for the substitution of other radio time for programs so rejected or for the payment at the station card rate for the time made unavail-
- (3) A prohibition against the resale or reassignment of any of the broadcast time reserved by such modified contract.
- (4) An express negation of any right with respect to reversion or reassignment of license.
- (5) An express provision setting forth a definite expiration date of the contract, arrangement or understanding. Such expiration date shall not extend beyond February 15, 1964 and shall in no event extend beyond the expiration date originally provided for in any such contract, agreement or understanding, in the event that such expiration date is a date prior to February 15, 1964.

(6) An express provision giving to the licensee the right to terminate the contract, arrangement or understanding for substantial cause, including, but not limited to, the assignment of license or the transfer of control of a corporate licensee, consistent' disagreement over programs between the parties, or the acquisition of a network affiliation by the licensee, upon the payment of a lump sum or periodic payments, and providing that the amount initially fixed shall thereafter decrease as the amount of time reserved is decreased by performance of the contract. Any such payment should not be so unduly large as to constitute in practice an effective deterrent to the licensee exercising the right of termination. In determining whether the amount is unduly large, the Commission will consider the amount by which consideration in return for the transfer of the station was decreased by reason of the reservation of time or the present value of the radio time still reserved and unused as of the date of the exercise of the right of termination.

DATA AND MEASUREMENTS

§ 3.150 Data required with applications for directional antenna systems. (a) The following engineering data shall be submitted with the application for authority to install a directional antenna.

(1) Complete description of the proposed system showing:

Number of elements.

(ii) Type of each element (i. e., guyed or self-supporting, uniform cross section or tapered (specifying base width), grounded or insulated, etc.)

(iii) Complete engineering details of top loading or sectionalizing, if any,

(iv) Height of vertical lead of each element in feet (height above base insulator or base, if grounded)

(v) Overall height in feet of each element above ground,

(vi) Details including sketches of ground system for each element (length and number of radials, dimensions of ground screen, if used, and depth buried) and outlines of property,

(vii) Ratio of fields from elements

(identifying elements)

- (2) Calculated horizontal (ground) plane field intensity patterns for each mode of operation plotted to the largest scale possible on standard letter-size polar coordinate paper (main engraving approximately 7" x 10") using only scale divisions and subdivisions having values of 1, 2, 2.5, or 5 times 10^{nth} and showing:
- (i) Inverse field intensity at 1 mile and effective field intensity (RMS) \

(ii) Direction true north shall be

shown at zero azimuth.

(iii) Direction and distance to each existing station with which interference may be involved. (All directions shall be determined by accurate calculation or from Lambert Conformal Conic Projection Map such as United States Coast and Geodetic Survey Map, No. 3060a, or map of equal accuracy, and all distances shall be determined by accurate calculation or from United States Albers Equal Area Projection Map scale 1/2,500,000 or map of equal accuracy. These may be obtained from the United States Coast and Geodetic Survey and the United States Department of Interior, Geological Survey.)

(iv) Orientation of array with respect to true north and time phasing of fields from elements (specifying degrees leading [+] or lagging [-]) and space phasing of elements (identifying ele-(Space phasing should be given in feet as well as in degrees.)

(v) The location of all the minima in the pattern.

(3) Calculated field intensity vs. azimuth patterns for every 5 degrees of elevation through 60 degrees in those instances where radiation at angles above the horizontal plane is a pertinent factor in station allocation. These patterns may be plotted in polar or rectangular coordinates but shall be submitted one to a page. Minor lobe and null detail occurring between the 5 degree intervals need not be submitted.

(4) Data used in computing the patterns in subparagraphs (2) and (3) of

this paragraph including:

(i) Formula used for calculating the horizontal patterns, sample calculations. (Derivation of formula if other than standard is used.)

(ii) All assumptions made and basis therefor, including electrical height, current distribution and efficiency of each element, and ground conductivity.

(iii) Complete tabulation of final calculated data used in plotting patterns, including data for determination of RMS

value of pattern.
(5) Values of field intensity less than 10 percent of the effective field intensity of the patterns in subparagraphs (2) and (3) of this paragraph shown on an enlarged scale.

(6) In the event actual inverse distance field intensities expected to be determined in practice (that is, the values determined from actual measurements, particularly in sharp nulls) are different from the calculated values in subparagraphs (2) and (3) of this paragraph, the maximum expected operating values (MEOV) as well as the calculated values shall be shown on both the full patterns and the enlarged sections.

(7) Any additional information required by the application form.

§ 3.151 Field intensity measurement's to establish performance of directional antennas. (a) In addition to the information required by the license application form, the following showing must be submitted to indicate that the pattern obtained for each mode of directional operation is essentially the same as that predicted by the application and required by terms of the authorization and that any specific requirements set out are fully met:

(1) Horizontal field intensity pattern(s) showing the inverse field intensity at 1 mile and effective field intensity (RMS) as determined from field intensity measurements taken and analyzed in accordance with § 3.186 in at least the following directions:

(i) Those specified in the instrument of authorization.

(ii) In major lobes, Generally at least three radials are necessary to establish a major lobe; however, additional radials may be required.

(iii) Along sufficient number of other radials to establish the effective field. In the case of a relatively simple directional antenna pattern, approximately five radials in addition to those in subdivisions (i) and (ii) of this subparagraph are sufficient. However, when more complicated patterns are involved, that is, patterns having several or sharp lobes or nulls, measurements shall be taken along as many radials as may be necessary, to definitely establish the

(2) Pattern(s) plotted with direction true north as zero azimuth and showing the orientation of array with respect to true north, time and space phasing of elements, and both calculated and measured parameters. (Specify degrees leading [+] or lagging [-] and space phasing in feet as well as in degrees.)

(3) Pattern(s) plotted to the largest scale possible on standard letter-size polar coordinate paper (main engraving approximately 7" x 10") using divisions and subdivisions having values of 1, 2, 2.5, or 5 times 10nth (no other values shall be used) All values of field mtensity less than 10 percent of the RMS field intensity of the pattern shown on an enlarged scale.

(4) Complete tabulation of all data used in plotting the above pattern(s)

(5) The 25 and 5 my/m field intensity contours and the nighttime interferencefree contour, when the pattern is for nighttime operation, as well as any other contours specified by the instrument of authorization; plotted on a map which has the largest practical scale. These contours need not be shown for distances greater than, 20 miles from the antenna except that the field intensity contours on the far side of the business and residential areas of the city in which the main studio is located shall be shown. When the station is limited by interference within the 5 mv/m contour the latter contour need not be shown. In the event the 5 my/m contour includes and extends beyond the city and beyond 20 miles, the highest signal intensity contour that entirely includes the city may be plotted in lieu of the 5 mv/m contour; in the event that the 5 my/m contour does not include the city, the contour of highest signal intensity encompassing the city shall be plotted in addition to the 5 mv/m contour.

(6) The actual field intensity measured at each monitoring point established in the various directions for which a limiting field was specified in the instrument of authorization together with accurate and detailed description of each monitoring point together with ordinary snapshots, clear and sharp, taken with the field intensity meter in its measuring position and with the camera so located that its field of view takes in as many pertinent landmarks as possible. In addition, the directions for proceeding to each monitoring point together with a rough sketch or map upon which has been indicated the most accessible approaches to the monitoring points should be submitted.

§ 3.152 Field intensity measurements in support of applications or evidence at hearings. In the determination of interference, groundwave field intensity measurements will take precedence over theoretical values, provided such measurements are properly taken and presented. When measurements of groundwave signal intensity are presented, they shall be sufficiently complete in accordance with § 3.186 to determine the field intensity at 1 mile in the pertinent directions for that station.

Note: The antenna resistance measurements required by § 3.186 need not be taken

STANDARD BROADCAST TECHNICAL STANDARDS

§ 3.181 Introduction. (a) There are presented herein the Technical Standards giving interpretations and further considerations concerning the rules and regulations of the Federal Communications Commission governing standard broadcast stations. While rules and regulations form the basis of good engineering practice, these standards may go beyond the rules and regulations and set up engineering principles for consideration of various allocation problems. These standards have been approved by the Commission and thus are considered as reflecting the opinion of the Commission in all matters involved.

(b) The Technical Standards set forth herein are those deemed necessary for the construction and operation of standard broadcast stations to meet the requirements of technical regulations and for operation in public interest along technical lines not specifically enunciated in the regulations. These standards are based on the best engineering data available from evidence supplied in formal and informal hearings and extensive surveys conducted in the field by the Commission's personnel. Numerous informal conferences have been held with radio engineers, manufacturers of radio equipment and others for the guidance of the Commission in the formulation of these standards.

(c) These standards are complete in themselves and supersede any previous announcements or policies which may have been enunciated by the Commission on engineering matters concerning standard broadcast stations.

(d) While these standards provide for flexibility and set forth the conditions under which they are applicable, it is not expected that material deviation therefrom as to fundamental principles will be recognized unless full information is submitted as to the reasonableness of such departure and the need therefor.

(e) These standards will necessarily change as progress is made in the art, and accordingly it will be necessary to make revisions from time to time. The Commission will accumulate and analyze engineering data available as to the progress of the art so that its standards may be kept current with the developments.

§ 3.182 Engineering standards of allocation. (a) Sections 3.21 to 3.34, inclusive, govern allocation of facilities in the standard broadcast band of 535 to 1605 kc. Section 3.21 establishes three classes of channels in this band, namely, clear channels for the use of highpowered stations, regional channels for the use of medium-powered stations, and local channels for the use of low-powered stations. The classes and power of standard broadcast stations which will be assigned to the various channels are set forth in § 3.22. The classification of the standard broadcast stations are as follows:

(1) Class I stations are dominant stations operating on clear channels with powers of not less than 10 or more than

50 kw. These stations are designed to render primary and secondary service over an extended area and at relatively long distances, hence have their primary service areas free from objectionable interference from other stations on the same and adjacent channels and secondary service areas free from objectionable interference from stations on the same channels. (The secondary service area of a Class I station is not protected from adjacent channel interference. However, if it is desired to make a determination of the area in which adjacent channel groundwave interference (10 kc removed) to skywave service exists, it may be considered as the area where the ratio of the desired 50% skywave of the Class I station to the undesired groundwave of a station 10 kc removed is 1 to 4.) From an engineering point of view, Class I stations may be divided into two groups and, hereafter, for the purpose of convenience, the two groups of Class I stations will be termed Class I-A or I-B in accordance with the assignment to channels allocated by § 3.25 (a) or (b)

(i) The Class I stations in group I-A are those assigned to the channels allocated by § 3.25 (a) on which duplicate nighttime operation is not permitted, that is, no other station is permitted to operate on a channel with a Class I station of this group within the limits of the United States (the Class II stations assigned the channels operate limited time or daytime only), and during daytime the Class I station is protected to the 100 uv/m ground wave contour. Protection is given this class of station to the 500 uv/m ground wave contour from adjacent channel stations for both day and nighttime operations. The power of each such Class I station shall not be

less than 50 kw.

(ii) The Class I stations in group I-B are those assigned to the channels allocated by § 3.25 (b) on which duplicate operation is permitted, that is, other Class I or Class II stations operating unlimited time may be assigned to such channels. During nighttime hours of operation a Class I station of this group is protected to the 500 uv/m 50 percent sky wave contour and during daytime hours of operation to the 100 uv/m ground wave contour from stations on the same channel. Protection is given to the 500 uv/m groundwave contour from stations on adjacent channels for both day and nighttime operation. The operating powers of Class I stations on these frequencies shall be not less than 10 kw nor more than 50 kw.

(2) Class II stations are secondary stations which operate on clear channels with powers not less than 0.25 kw. or more than 50 kw. These stations are required to use a directional antenna or other means to avoid causing interference within the normally protected service areas of Class I stations or other Class II stations. These stations normally render primary service only, the area of which depends on the geographical location, power, and frequency. This may be relatively large but is limited by and subject to such interference as may be received from Class I stations. However, it is recommended that Class

II stations be so located that the interference received from other stations will not limit the service area to greater than the 2500 uv/m ground wave contour nighttime and 500 uv/m groundwave contour daytime, which are the values for the mutual protection of this class of stations with other stations of the same class.

(3) Class III stations operate on regional channels and normally render primary service to the larger cities and the rural area contiguous thereto, and are subdivided into two classes:

(i) Class III-A stations which operate with powers not less than 1 kw or more than 5 kw are normally protected to the 2500 uv/m groundwave contour nighttime and the 500 uv/m groundwave contour daytime.

(ii) Class III-B stations which operate with powers not less than 0.5 kw, or more than 1 kw nighttime and 5 kw daytime are normally protected to the 4000 uv/m groundwave contour nighttime and 500 uv/m groundwave contour daytime.

(iii) Class IV stations operate on local channels normally rendering primary service only to a city or town and the surburban and rural areas contiguous thereto with powers not less than 0.1 kw or more than 0.25 kw. The stations are normally protected to 500 uv/m groundwave contour daytime. On local channels the separation required for the daytime protection shall also determine the nighttime separation. The actual nighttime limitation will be calculated.

Note: The following approximate method may be used. It is based on the assumption of 0.25 wavelength antenna height and 88 my/m at one mile effective field for 250 watts power, using the 10% skywave field intensity curve of Figure 2 of § 3.190. Zones defined by circles of various radii specified below are drawn about the desired station and the interfering 10% skywave signal from each station in a given zone is considered to be the value tabulated below. The effective interfering 10% skywave signal is taken to be the RSS value of all signals originating within these zones. (Stations beyond 500 miles are not considered.)

Zone	Inver radius	Outer `radius	10 percent skywave signal (mv/m)
A	60 80 100 250 350 450	60 80 100 250 350 450 500	0. 10 . 12 . 14 . 16 . 14 . 12 . 10

Where the power of the interfering station is not 250 watts, the 10% skywave signal should be adjusted by the square root of the ratio of the power to 250 watts.

(b) The class of any station is determined by the channel assignment, the power, and the field intensity contour to which it renders service free of interference from other stations as determined by these standards. No station will be permitted to change to a class normally protected to a contour of less intensity than the contour to which the station actually renders interference-free service. Any Station of a class normally protected to a contour of less intensity than that to which the station actually renders interference-free service, will be

automatically reclassified according to the class normally protected, the minimum consistent with its power and channel assignment. Likewise, any station to which the interference is reduced so that service is rendered to a contour normally protected for a higher class will be automatically changed to that class if consistent with its power and channel assignment.

(c) When it is shown that primary service is rendered by any station, beyond the normally protected contour, and when primary service to approximately 90° percent of the population (population served with adequate signal) of the area between the normally protected contour and the contour to which such station actually serves, is not supplied by any other station or stations carrying the same general program service, the contour to which protection may be afforded in such cases will be determined from the individual merits of the case under consideration.

(d) When a station is already limited by interference from other stations to a contour of higher value than that normally protected for its class, this contour shall be the established standard for such station with respect to interference from all other stations.

(e) The several classes of broadcast stations have in general three service areas; namely, primary, secondary, and intermittent service areas. (See § 3.11 for the definitions of primary, secondary, and intermittent service areas.) Class I stations render service to all three service areas. Class II stations render service to a primary area but the secondary and intermittent service areas may be materially limited or destroyed due to interference from other stations depending on the station assignments involved. Class III and IV stations usually have only primary service areas as interference from other stations generally prevents any secondary service and may limit the intermittent service area. However, complete intermittent service may be obtained in many cases depending on the station assignments involved.

(f) The signals necessary to render primary service to different types of service areas are as follows:

Area:	Field intensity groundwave 1
City business or fac- tory areas	10 to 50 mv/m
ern areas during summer	0.1 to 0.5 mv/m
Rural—southern areas during summer	0.25 to 1.0 my/m

¹See § 3.184 for curves showing distance to various ground wave field intensity contours for different frequency and ground conductivities and § 3.183.

All these values are based on an absence of objectionable fading, either in changing intensity or selective fading, the usual noise level in the areas, and an absence of limiting interference from other broadcast stations. The values apply both day and night but generally fading or interference from other stations limits the primary service at night in all rural areas to higher values of field

intensity than the values given. The Commission will not authorize a directive antenna for a Class IV station assigned a local channel.

Note: Standards have not been established for interference from atmospherics or manmade electric noise as no uniform method of measuring noise or static has been established. In any individual case objectionable interference from any source, except other broadcast signals, may be determined by comparing the actual noise interference reproduced during reception of a desired broadcast signal to the degree of interference that would be caused by another broadcast signal within 20 cycles of the desired signal and having a carrier ratio of 20 to 1 with both signals modulated 100 percent on peaks of usual programs. Standards of noise measurements and interference ratio for noise are now being studied.

(g) In determining the population of the primary service area, it may be considered that the following signals are satisfactory to overcome man-made noise in towns of the population given.

These values are subject to wide variations in individual areas and especial attention must be given to interference from other stations. The values are not considered satisfactory in any case for service to the city in which the main studio of the station is located. The values in paragraph (f) of this section shall apply except as individual consideration may determine.

(h) All classes of broadcast stations have primary service areas subject to limitation by fading and noise, and interference from other stations to the contours set out for each class of station.

(i) Secondary service is delivered in the areas where the sky wave for 50 percent or more of the time has a field intensity of 500 uv/m or greater. (The secondary service area of a Class 1-A station should be considered as having this limit only for determination of service in comparison with other stations.) It is not considered that satisfactory secondary service can be rendered to cities unless the sky wave approaches in value the ground wave required for primary service. The secondary service is necessarily subject to some interference and extensive fading whereas the primary service area of a station is subject to no objectionable interference or fading. Class I stations only are assigned on the basis of rendering secondary service.

Note: Standards have not been established for objectionable fading as such standards would necessarily depend on the receiver characteristics which have been changed considerably in this regard during the last several years. Selective fading causing audio distortion and the signal fading below the noise level are the objectionable characteristics of fading on modern design receivers. The AVC circuits in the better designed modern receivers in general maintain the audio output sufficiently constant to be satisfactory during most fading.

fading or interference from other stations limits the primary service at night the outer boundary of the primary service at night the outer boundary of the primary service area and extends to the value of signal

where it may be considered as having no further service value. This may be down to only a few microvolts in certain areas and up to several millivolts in other areas of high noise level, interference from other stations, or objectionable fading at night. The intermittent service area may vary widely from day to night and generally varies from time to time as the name implies. Only Class I stations are assigned for protection from interference from other stations into the intermittent service area.

(k) Section 3.23 provides that the several classes of broadcast stations may be licensed to operate unlimited time, limited time, daytime, sharing time, and specified hours, with full explanation given in the section.

(1) Section 3.24 sets out the general requirements for obtaining an increase in facilities of a licensed station and for a new station. Section 3.24 (b) concerns the matter of interference that may be caused by a new assignment or increase in facilities of an existing assignment.

(m) [Reserved.] (n) [Reserved.]

- (o) Objectionable interference from another broadcast station is the degree of interference produced when, at a specified field intensity contour with respect to the desired station, the field intensity of an undesired station (or the rootsum-square value of field intensities of two or more stations on the same frequency) exceeds for ten (10) percent or more of the time the values set forth in these standards. (The secondary service area of a Class I-A station should be considered as having this limit only for determination of service in comparison with other stations.)
- (1) With respect to the root-sumsquare values of interfering field intensities referred to herein, except in the case of Class IV stations on local channels, calculation is accomplished by considering the signals in order of decreasing magnitude, adding the squares of the values and extracting the square root of the sum, excluding those signals which are less than 50% of the RSS value of the higher signals already included.
- (2) The RSS value will not be considered to be increased when a new interfering signal is added which is less than 50% of the RSS value of the interference from existing stations, and which at the same time is not greater than the smallest signal included in the RSS value of interference from existing stations.
- (3) It is recognized that application of the above "50% exclusion" method of calculating the RSS interference may result in some cases in anomalies wherein the addition of a new interfering signal or the increase in value of an existing interfering signal will cause the exclusion of a previously included signal and may cause a decrease in the calculated RSS value of interference. In order to provide the Commission with more realistic information regarding gains and losses in service (as a basis for determination of the relative merits of a proposed operation) the following alternate method for calculating the proposed RSS values of interference will be employed wherever applicable.

(4) In the cases where it is proposed to add a new interfering signal which is not less than 50% of the RSS value of interference from existing stations or which is greater than the smallest signal already included to obtain this RSS value, the RSS limitation after addition of the new signal shall be calculated without excluding any signal previously included. Similarly, in cases where it is proposed to increase the value of one of the existing interfering signals which has been included in the RSS value, the RSS limitation after the increase shall be calculated without excluding the interference from any source previously ıncluded.

(5) If the new or increased signal proposed in such cases is ultimately authorized, the RSS values of interference to other stations affected will thereafter be calculated by the "50% exclusion" method without regard to this alternate method of calculation.

(6) Examples of RSS interference calculations:

(i) Existing interferences:

Station No. 1—1.0 mv/m.
Station No. 2—0.60 mv/m.
Station No. 3—0.59 mv/m.
Station No. 4—0.58 mv/m.

The RSS value from Nos. 1, 2 and 3 is 1.31 my/m: therefore interference from No. 4 is excluded for it is less than 50% of 1.31 mv/m.

(ii) Station A receives interference from:

Station No. 1-1.0 mv/m. Station No. 2—0.60 mv/m. Station No. 3—0.59 mv/m.

It is proposed to add a new limitation-0.68 mv/m. This is more than 50% of 1.31 mv/m, the RSS value of Nos. 1, 2 and 3. The RSS value of Station No. 1 and of the proposed station would be 1.21 my/m which is more than twice as large as the limitation from Station No. 2 or No. 3. However, under the above provision the new signal and the three existing interferences are nevertheless calculated for purposes of comparative studies, resulting in an RSS value of 1.47 mv/m. However, if the proposed station is ultimately authorized, only No. 1 and the new signal are included in all subsequent calculations for the reason that Nos. 2 and 3 are less than 50% of 1.21 mv/m, the RSS value of the new signal and No. 1.

(iii) Station A receives interference from:

Station No. 1—1.0 mv/m. Station No. 2—0.60 mv/m. Station No. 3—0.59 mv/m.

No. 1 proposes to increase the limitation it imposes on Station A to 1.21 mv/m. Although the limitations from stations Nos. 2 and 3 are less than 50% of the 1.21 mv/m limitation, under the above provision they are nevertheless included for comparative studies, and the RSS limitation is calculated to be 1.47 mv/m. However, if the increase proposed by Station No. 1 is authorized, the RSS value then calculated is 1.21 my/m because Stations Nos. 2 and 3 are excluded in view of the fact that the limitations they impose are less than 50% of 1.21 mv/m.

(p) Objectionable interference from a station on the same channel shall be

considered to exist to a station when, at the field intensity contour specified in paragraph (v) of this section with respect to the class to which the station belongs, the field intensity of an interfering station (or the root-sum-square value of the field intensities of two or more interfering stations) operating on the same channel, exceeds for ten (10) percent or more of the time the value of the permissible interfering signal set forth opposite such class in paragraph (v) of this section.

(q) Objectionable interference from a station on an adjacent channel shall be considered to exist to a station when, at the normally protected contour of a desired station, the field intensity of the ground wave of an undesired station operating on an adjacent channel (or the root-sum-square value of the field intensities of two or more such undesired stations operating on the same adjacent channel) exceeds a value specified in paragraph (w) of this section.

(r) For the purpose of estimating the coverage and the interfering effects of stations in the absence of field intensity measurements, use shall be made of Figure 8 of § 3.190 which describes the estimated effective field for one kilowatt power input of simple vertical omnidirectional antennas of various heights with ground systems of at least 120 onequarter wavelength radials. Certain approximations, based on the curve or other appropriate theory, may be made when other than such antennas and ground systems are employed, but in any event the effective field to be employed shall not be less than given in the following:

Class of station: Effective field __ 225 mv/m II and III___ 175 mv/m IV_ 150 mv/m

In case a directional antenna is employed, the interfering signal of a broadcasting station will vary in different directions, being greater than the above values in certain directions and less in others, depending upon the design and adjustment of the directional antenna system. To determine the interference in any direction the measured or calculated radiated field (unabsorbed field intensity at 1 mile from the array) must be used in conjunction with the appropriate propagation curves. (See § 3.185 for further discussion and solution of a typical directional antenna case.)

(s) The existence or absence of objectionable groundwave interference from stations on the same or adjacent channels shall be determined by actual measurements made according to the method hereinafter described, or, in the absence of such measurements, by reference to the propagation curves of § 3.134. The existence or absence of objectionable. interference due to skywave propagation shall be determined by reference to the appropriate propagation curves in Figure 1 or Figure 2 of § 3.190.

(t) In computing the fifty (50) percent skywave field intensity values and the ten (10) percent skywave field intensity values of a station on a clear channel, use shall be made of the appropriate graph set forth in Figure 1 of § 3.190 entitled "Average Skywave Field Intensity" (corresponding to the second hour after sunset at the recording station). These graphs are drawn for a radiatedfield of 100 mv/m at 1 mile in the horizontal plane from a 0.311 wavelength antenna. In computing the ten (10) percent skywave field intensity of a regional channel station, use shall be made of the appropriate curve in Figure 2 of § 3.190 entitled "10 percent Skywave Signal Range." This graph is drawn for a radiated field of 100 mv/m at 1 mile at the vertical angle pertinent to transmission by one reflection. This curve supersedes the ten (10) percent skywave

curve of Figure 1 of § 3.190, only for regional and local channels at the present time. Adoption of revised skywave curves for use on clear channels will await the outcome of the Clear Channel Hearing (Docket No. 6741)

(u) The distance to any specified groundwave field intensity contour for any frequency may be determined from the appropriate curves in § 3.184 entitled "Ground Wave Field Intensity Distance."

(v) Protected service contours and permissible interference signals broadcast stations are as follows:

Class of station	Class of channel	Permissible power	Signal intensity contour of area protected from objectionable interference i		Permissible interfering signal on same channel ?	
	used		Day 3	Night	Day :	Night 4
I-A	Clear	50 kw	SC 100 uv/m AC 500 uv/m	Not duplicated	5 uv/m	Not dupli-
I-B	Clear	10 kw. to 50 kw	SC 100 uv/m AC 500 uv/m	500 uv/m	5 uv/m	25 uv/m.
II. III-A III-B	Clear Regional Regional	0.25 kw. to 50 kw 1 kw. to 5 kw 0.5 to 1 kw. night and 5 kw. day.	500 uv/m 500 uv/m 500 uv/m	2500uv/m (groundwave) 2500 uv/m (groundwave) 4000 uv/m (groundwave)	25uv/m 25uv/m 25 uv/m.	125 uv/m. 125 uv/m. 200 uv/m.
IV	Local	0.1 kw. to 0.25 kw.	500 uv/m	Not prescribed 6	25 uv/m.	Not pre- scribed.

¹ When it is shown that primary service is rendered by any of the above classes of stations, beyond the normally protected contour, and when primary service it approximately 90 percent of the population (population served with adequate signal) of the area between the normally protected contour and the contour to which such station actually serves, is not supplied by any other station or stations, the contour to which protection may be afforded in such cases will be determined from the individual merits of the case under consideration. When a station is already limited by interference from other stations to a contour of higher value than that normally protected for its class, this contour shall be the established standard for such station with respect to interference from all other stations.

2 For adjacent channels see paragraph (w) of this section.

3 Ground wave.

4 These values are with respect to interference from all stations except Class I-B, which stations may cause interference to a field intensity contour of higher value. However, it is recommended that Class II stations be so located that the interferences received from Class I-B stations are limited by Class I-B stations to higher values, then such values shall be the established standard with respect to protection from all other stations. 1 When it is shown that primary service is rendered by any of the above classes of stations, beyond the normally

from all other stations.

See paragraph (a) (4) of this section.

SO=Same channel. AO=Adjacent channel.

(w) The following ratios are to be used for determining the minimum ratio of the field intensity of a desired to an undesired signal for interference free service. In the case of a desired groundwave signal interfered with by two or more skywave signals on the same frequency, the RSS value of the latter is used.

Frequency	Desired groundwave to—		Desired 50 percent skywaye
separation of desired to un- desired signals—	Undesired ground- wave	Undesired 10 percent skywave	to unde- sired 10 percent skywave
0 kc 10 kc 20 kc	20:1 1:1 1:30	20:1 1:5	(1) 20:1

¹ The secondary service area of a Class I station is not protected from adjacent channel interference. However, if it is desired to make a determination of the area in which adjacent channel groundwave interference (10 kc. removed) to skywave service exists, it may be considered as the area where the ratio of the desired 50 percent skywave of the Class I station to the undesired groundwave of a station 10 kc. removed is 1 to 4.

From the above, it is apparent that in many cases stations operating on channels 10 and 20 kilocycles apart may be operated with antenna systems side by side or otherwise in proximity without any indications of interference if the interference is defined only in terms of permissible ratios listed in this paragraph. As a practical matter, serious interference problems may arise when two or more stations with the same general service area are operated on channels 10, 20 and 30 kilocycles apart.

- (x) Two stations, one with a frequency twice that of the other, should not be assigned in the same groundwave service area unless special precautions are taken to avoid interference from the second harmonic of the lower frequency. In selecting a frequency, consideration should be given to the fact that occasionally the frequency assignment of two stations in the same area may bear such a relation to the intermediate frequency of some broadcast receivers as to cause so-called "image" interference. However, since this can usually be rectified by readjustment of the intermediate frequency of such receivers, the Commission in general will not take this kind of interference into consideration in allocation problems.
- (y) Two stations operating with synchronized carriers and carrying the identical program will have their groundwave service subject to some distortion in areas where the signals from the two stations are of comparable intensity. For the purpose of estimating coverage of such stations areas in which the signal ratio is between 1 to 2 and 2 to 1 will not be considered as having satisfactory service.

NOTE: Two stations are considered to be operated synchronously when the carriers are maintained within one-fifth of a cycle per second of each other and they transmit identical programs.

§ 3.183 Groundwave signals. (a) Interference that may be caused by a proposed assignment or an existing assignment during day time should be determined, when possible, by measure-ments on the frequency involved or on another frequency over the same terrain and by means of the curves in § 3.184 entitled "Ground Wave Field Intensity versus Distance."

- (b) In determining interference based upon field intensity measurements, it is necessary to do the following: First, establish the outer boundary of the protected service area of the desired station in the direction of the station that may cause interference to it. Second, at this boundary, measure the interfering signal from the undesired station. The ratio of the desired to the undesired signal given in § 3.182 (w) should be applied to the measured signals and if the required ratio is observed, no objectionable interference is foreseen. When measurements of both the desired and undesired stations are made in one area to determine the point where objectionable interference from groundwave signals occur or to establish other pertinent contours, several measurements of each station shall be made within a few miles of this point or contour. The effective field of the antonnas in the pertinent directions of the stations must be established and all measurements must be made in accordance with § 3.186.
- (c) In all cases where measurements taken in accordance with the requirements are not available, the groundwave intensity must be determined by means of the pertinent map of ground conductivity and the groundwave curves of field intensity versus distance. The conductivity of a given terrain may be determined by measurements of any broadcast signal traversing the terrain involved. Figures M3 and R3 of § 3.100 show the conductivity throughout the United States by general areas of reasonably uniform conductivity When it is clear that only one conductivity value is involved, Figure R3 of § 3.190, which is a replica of Figure M3 and contained in these standards, may be used; in all other situations Figure M3 must be employed. It is recognized that in areas of limited size or over a particular path, the conductivity may vary widely from the values given; therefore, these maps are to be used only when accurate and acceptable measurements have not been made. Figure 4 of § 3.190 is a map of ground conductivity in Canada prepared by the Canadian Department of Transport. It is to be noted that at some locations there are differences in conductivity on either side of the border, which cannot be explained by geophysical cleavages. Pending adjustment of the maps for such inconsistencies, all variations at the border will be treated as real.

Note: Figure M3 which is incorporated in these Standards by reference, was derived by indicating ground conductivity values in the United States on the United States Albers equal area projection map (based on standard parallels 29½ and 45½° North American datum; scale 1/2,500,000). Figure M3, consisting of two sections, an eastern and a western half, may be obtained from the Superintendent of Documents, Washington,

(d) Example of determining interference by the graphs in § 3.184.

It is desired to find whether objectionable interference exists between a 5 kw Class III station on 990 kc and a 1 kw Class III station on 1000 kc, the stations being separated by 130 miles; both stations use nondirectional antennas having such height as to produce an effective field for 1 kw of 175 mv/m. (See § 3.185 in case of use of directional antennas.) The conductivity at each station and of the intervening terrain is determined as 6 mmhos/m. The protection to Class III stations during daytime is to the 500 uv/m contour. The distance to the 500 uv/m groundwave contour of the 1 kw station is determined by the use of the appropriate curve in § 3.184, Graph 12. Since the curve is plotted for 100 mv/m at a mile, to find the distance to the 500 uv/m contour of the 1 kw station, it is necessary to determine the distance to the 285 uv/m contour $(100 \times 500 = 285)$. From the appropriate

curve, the estimated radius of the service area for the desired station is found to be 39.5 miles. Subtracting this distance from the distance between the two stations leaves 90.5 miles for the interfering signal to travel. From the above curve it is found that the signal from the 5 kw station at this distance would be 158 uv/m. Since a one to one ratio applies for stations separated by 10 kc, the undesired signal at that point can have a value up to 500 uv/m without objectionable interference. If the undesired signal had been found to be greater than 500 uv/m, then objectionable interference would exist. For other channel separations, the appropriate ratio of desired to undesired signal should be used.

(e) Where a signal traverses a path over which different conductivities exist, the distance to a particular groundwave field intensity contour shall be determined by the use of the equivalent distance method. Reasonably accurate results may be expected in determining field intensities at a distance from the antenna by application of the equivalent distance method when the unattenuated field of the antenna, the various ground conductivities and the location of discontinuities are known. method considers a wave to be propagated across a given conductivity according to the curve for a homogeneous earth of that conductivity. When the wave crosses from a region of one conductivity into a region of a second conductivity, the equivalent distance of the receiving point from the transmitter changes abruptly but the field intensity does not. From a point just inside the second region the transmitter appears to be at that distance where, on the curve for a homogeneous earth of the second conductivity, the field intensity equals the value that occurred just across the boundary in the first region. Thus the equivalent distance from the receiving point to the transmitter may be either greater or less than the actual distance. An imaginary transmitter is considered to exist at that equivalent distance. This technique is not intended to be used as a means of evaluating unattenuated field or ground conductivity by the analysis of measured data. The method to be employed for such determinations is set out in § 3.186.

(f) An example of the use of the equivalent distance method follows:

It is desired to determine the distance to the 0.5 mv/m and 0.025 mv/m contours of a station on a frequency of 1000 kc with an inverse distance field of 100 mv/m at one

mile being radiated over a path having a conductivity of 10 mmhos/m for a distance of 15 miles, 5 mmhos/m for the next 20 miles and 15 mmhos/m thereafter. By the use of the appropriate curves in § 3.184-Graph 12, it is seen that at a distance of 15 miles on the curve for 10 mmhos/m the field is 3.45 my/m. The equivalent distance to this field intensity for a conductivity of 5 mmhos/m is 11 miles. Continuing on the propagation curve for the second conductivity, the 0.5 mv/m contour is encountered at a distance of 37.9 miles from the imaginary transmitter. Since the imaginary transmitter was 4 miles nearer (15-11 miles) to the 0.5 mv/m contour, the distance from the contour to the actual transmitter is 31.9 miles (27.9+4 The distance to the 0.025 mv/m contour is determined by continuing on the propagation curve for the second conductivity to a distance of 31 miles (11+20 miles), at which point the field is read to be 0.39 mv/m. At this point the conductivity changes to 15 mmhos/m and from the curvo relating to that conductivity, the equivalent distance is determined to be 58 miles—27 miles more distant than would obtain had a conductivity of 5 mmhos/m prevailed. Using the curve representing the conductivity of 15 mmhos/m the 0.025 mv/m contour is determined to be at an equivalent distance of 172 miles. Since the imaginary transmitter was considered to be 4 miles closer at the first boundary and 27 miles farther at the second boundary, the net effect is to consider the imaginary transmitter 23 miles (27-4 miles) more distant than the actual transmitter; thus the actual distance to the 0.025 mv/m contour is determined to be 149 miles (172-23 miles).

§ 3.184 Groundwave field intensity charts. (a) Graphs 1–19A show the computed values of groundwave field intensity as a function of the distance from the transmitting antenna. The groundwave field intensity is here considered to be that part of the vertical component of the electric field received on the ground which has not been reflected from the ionosphere nor the troposphere. These 20 charts were computed for 20 different frequencies, a dielectric constant of the ground equal to 15 for land and 80 for sea water (referred to air as unity) and for the ground conductivities (expressed in mmhos/m) given on the curves. The curves show the variation of the groundwave field intensity with distance to be expected for transmission from a short vertical antenna at the surface of a uniformly conducting spherical earth with the ground constants shown on the curves: the curves are for an antenna power and efficiency such that the inverse distance field is 100 mv/m at 1 mile. The curves are valid at distances large compared to the dimensions of the antenna for other than short vertical antennas.

(b) The inverse distance field (100 my/m divided by the distance in miles) corresponds to the groundwave field intensity to be expected from an antenna with the same radiation efficiency when it is located over a perfectly conducting earth. To determine the value of the groundwave field intensity corresponding to a value of inverse distance field other than 100 mv/m at 1 mile, simply multiply the field intensity as given on these charts by the desired value of inverse distance field at 1 mile divided by 100; for example, to determine the groundwave field intensity for a station with an inverse distance field of 1700 mv/m at 1 mile, simply multiply the values

given on the charts by 17. The value of the inverse distance field to be used for a particular antenna depends upon the power input to the antenna, the nature of the ground in the neighborhood of the antenna, and the geometry of the antenna. For methods of calculating the interrelations between these variables and the inverse distance field, see "The Propagation of Radio Waves Over the Surface of the Earth and in the Upper Atmosphere," Part II, by Mr. K. A. Norton, Proc. I. R. E., Vol. 25, September 1937, pp. 1203–1236.

(c) At sufficiently short distances (say less than 35 miles) such that the curvature of the earth does not introduce an additional attenuation of the waves, the graphs were computed by means of the plane earth formulas given in the paper, The Propagation of Radio Waves Over the Surface of the Eartth and in the Upper Atmosphere," Part I, by Mr. K. A. Norton, Proc. I. R. E., Vol. 24, October 1936, pp. 1367-1387. At larger distances the additional attenuation of the waves which is introduced by the effect of the curvature of the earth was introduced by the methods outlined in the papers, "The Diffraction of Electromagnetic Waves from an Electrical Point Source round a Finitely Conducting Sphere, with Applications to Radiotelegraphy and the Theory of the Rainbow," by Balth van der Pol and H. Bremmer, Part I, Phil. Mag., Vol. 24, p. 141, July 1937, Part II, Phil. Mag., Vol. 24, p. 825, Suppl., November 1937, "Ergebrisse einer Theorie uber die Fortpflanzung elektromagnetischer Wellen uber eine Kugel endlicher Leitfahigkeit," by Balth van der Pol and H. Bremmer, Hochfrequenztechnik und Elektroakustik, Band 51, Heft 6, June 1938, "Further Note on the Propagation of Radio Waves over a Finitely Conducting Spherical Earth," by Balth van der Pol and H. Bremmer, Phil. Mag., Vol. 27, p. 261, March 1939. In order to allow for the refraction of the radio waves in the lower atmosphere due to the variation of the dielectric constant of the air with height above the earth, a radius of the earth equal to 4/3 the actual radius was used in the computations for the effect of the earth's curvature in the manner suggested by C. R. Burrows, "Radio Propagation over Spherical Earth," Proc. I. R. E., May 1935; i. e., the distance corresponding to a given value of attenuation due to the curvature of the earth in the absence of air refraction was multiplied by the factor $(4/3)^{\frac{3}{3}}=1.21$. The amount of this refraction varies from day to day and from season to season, depending on the air mass conditions in the lower atmosphere. If k denotes the ratio between the equivalent radius of the earth and the true radius, the following table gives the values of k for several typical air masses encountered in the United States.

	k		
Air mass typo	Summer	Winter	
Tropical Gulf—T. Polar Continental—P. Superior—S.	1.73 1.31 1.25	1.43 1.25 1.25	
Averaga	1.33		

It is clear from this table that the use of the average value of k=4/3 is justified in obtaining a single correction for the systematic effects of atmospheric refraction.

(d) Provided the value of the dielectric constant is near 15, the curves of Graphs 1–19A may be compared with experimental data to determine the appropriate values of the ground conductivity and of the inverse distance field intensity at 1 mile. This is accomplished simply by plotting the measured fields on transparent log-log graph paper similar to that used for Graphs 1-19A and superimposing this chart over the graph corresponding to the frequency involved. The log-log graph sheet is then shifted vertically until the best fit is obtained with one of the curves on the graph; the intersection of the inverse distance line on the graph with the 1-mile abscissa on the chart determines the inverse distance field intensity at 1 mile. For other values of dielectric constant, the following procedure may be used for a determination of the dielectric constant of the ground, conductivity of the ground and the inverse distance field intensity at 1 mile. Graph 20 gives the relative values of groundwave field intensity over a plane earth as a function of the numerical distance p and phase angle b. On graph paper with coordinates similar to those of Graph 20, plot the measured values of field intensity as ordinates versus the corresponding distances from the antenna expressed in miles as abscissae. The data should be plotted only for distances greater than one wavelength (or, when this is greater, five times the vertical height of the antenna in the case of a single element, i. e., nondirectional antenna or 10 times the spacing between the elements of a directional antenna) and for distances less than $50/f_{mc}^{\frac{14}{3}}$ miles (i. e., 50 miles at 1 mc) Then, using a light box, place the sheet with the data plotted on it over the sheet with the curves of Graph 20 and shift the data sheet vertically and horizontally (making sure that the vertical lines on both sheets are parallel) until the best fit with the data is obtained with one of the curves on Graph 20. When the two sheets are properly lined up, the value of the field intensity corresponding to the intersection of the inverse distance line of Graph 20 with the 1 mile abscissa on the data sheet is the inverse distance field intensity at 1 mile, and the values of the numerical distance at 1 mile, p_i , and of b are also determined. Knowing the values of b and p_1 (the numerical distance at 1 mile) we may substitute in the following approximate formulas to determine the appropriate values of the ground conductivity and dielectric constant.

$$x \succeq \frac{\pi}{p_1} \cdot (R/\lambda)_1 \cdot \cos b \qquad (1)$$

$$(R/\lambda)_1 = \text{Number of wavelengths in 1 nile.}$$

$$\sigma_{\bullet. \text{ in. u.}} = \frac{x f_{\text{in.}}}{17.9731} \cdot 10^{-14} \qquad (2)$$

$$\sigma_{\bullet. \text{ in. u.}} = \text{Conductivity of the ground expressed in electromagnetic units.}$$

$$f_{\text{in.}} = \text{Irequency expressed in megacycles.}$$

$$\epsilon \succeq x \text{ tan } b = 1$$

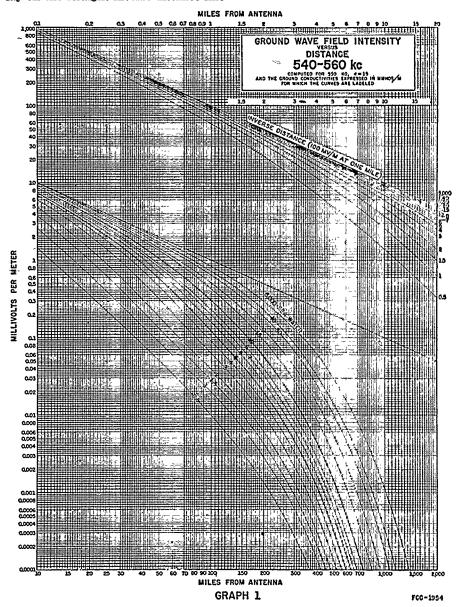
$$\epsilon = \text{dielectric constant of the ground referred to air as unity.}$$

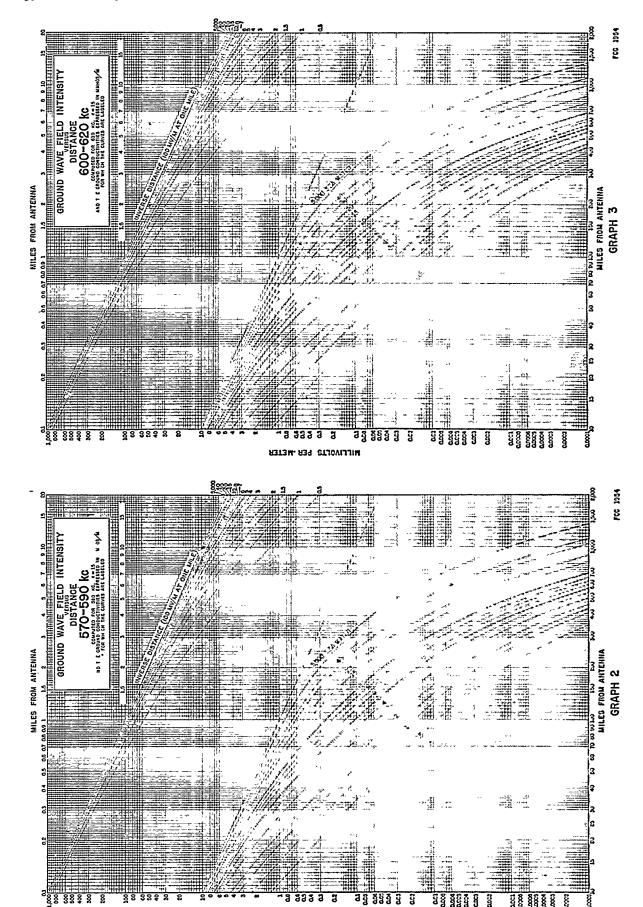
First solve for x by substituting the known values of p_1 , $(R/\lambda)_1$, and $\cos b$ in equation (1) Equation (2) may then be solved for σ and equation (3) for ϵ). At distances greater than $50/f_{\rm mo}^{1/2}$ miles the curves of Graph 20 do not give the correct relative values of field intensity since the curvature of the earth weakens the field more rapidly than these plane earth curves would indicate. Thus, no attempt should be made to fit experimental data to these curves at the larger distances.

(e) At sufficiently short distances (say less than 35 miles at broadcast frequencies) such that the curvature of the earth does not introduce an additional attenuation of the waves, the curves of Graph 20 may be used for determining the ground wave field intensity for transmitting and receiving antennas at the surface of the earth for any radiated power, frequency, or set of ground constants in the following manner: First, lay off the straight inverse distance line

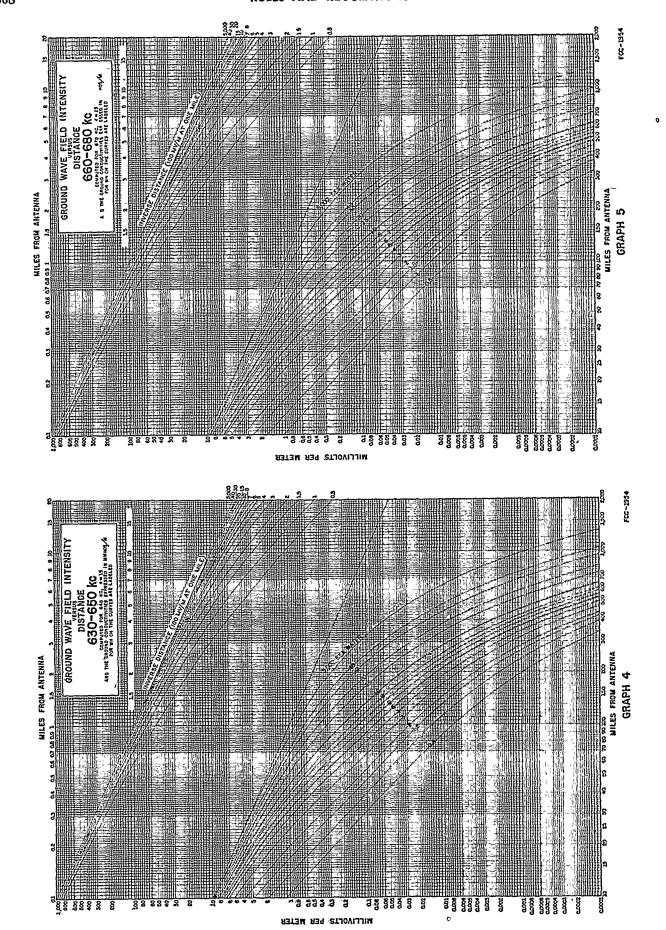
corresponding to the power radiated on transparent log-log graph paper similar to that of Graph 20, labelling the ordinates of the chart in terms of field intensity, and the abscissae in terms of distance. Next, by means of the formulas given on Graph 20, calculate the value of the numerical distance, p, at 1 mile, and the value of b. Then superimpose the log-log chart over Graph 20, shifting it vertically until the inverse distance lines on both charts coincide and shifting it horizontally until the numerical distance at 1 mile on Graph 20 coincides with 1 mile on the log-log graph paper. The curve of Graph 20 corresponding to the calculated value of b is then traced on the log-log graph paper giving the field intensity versus distance in miles.

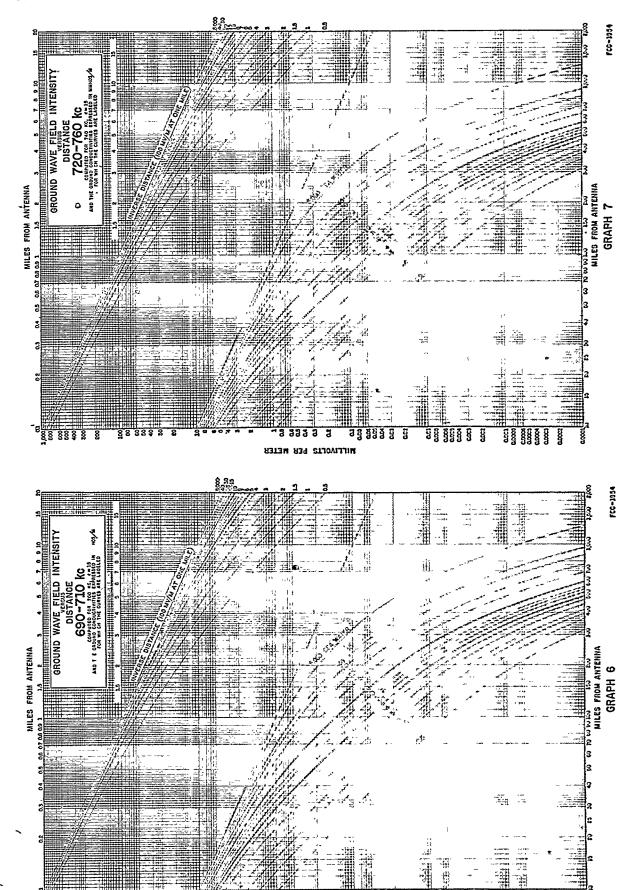
Note: The graphs as reproduced herein, due to the small scale are not to be used in connection with material submitted to the F. C. C.





MILLIYOLTS PER METER

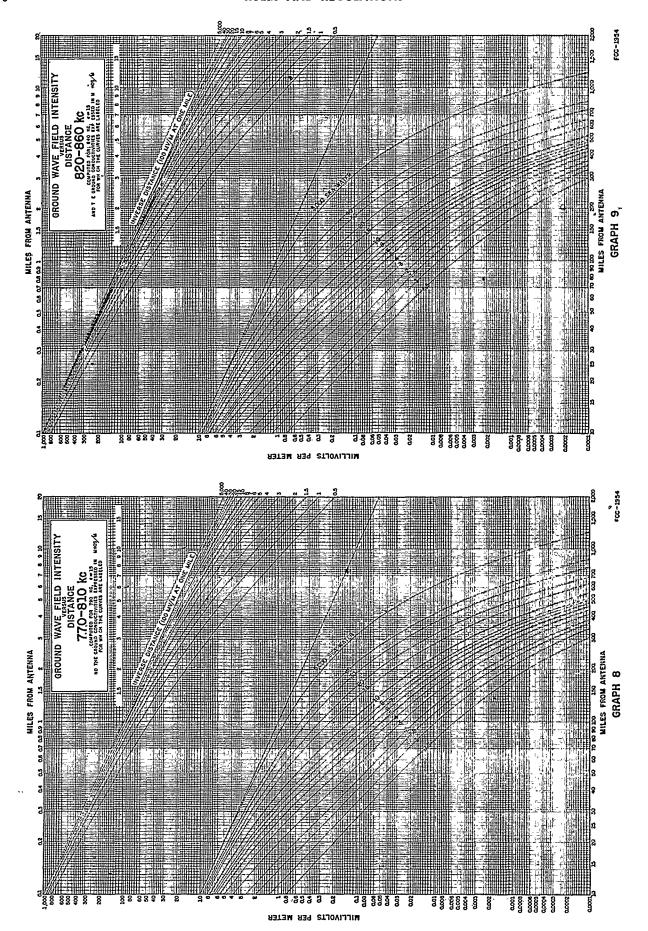


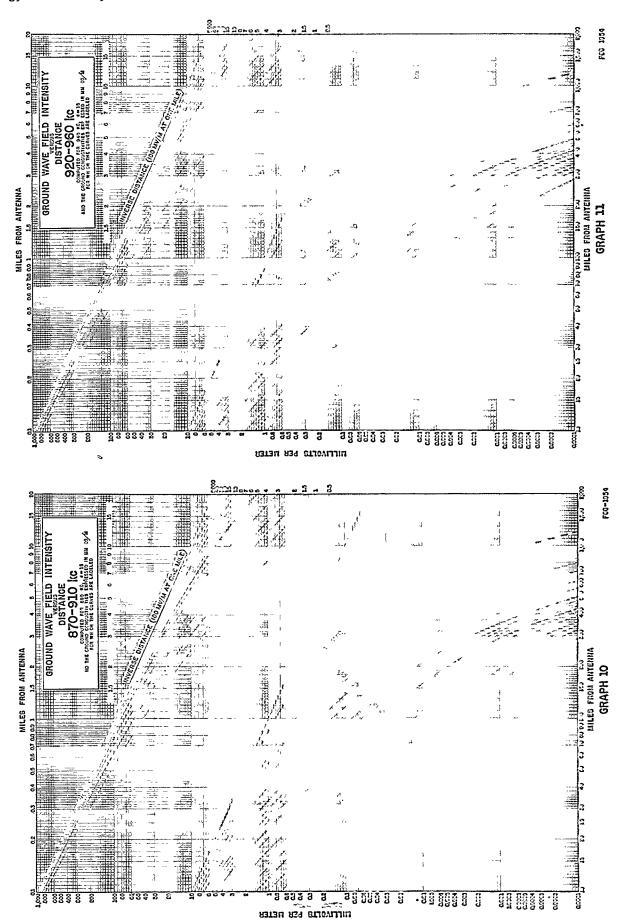


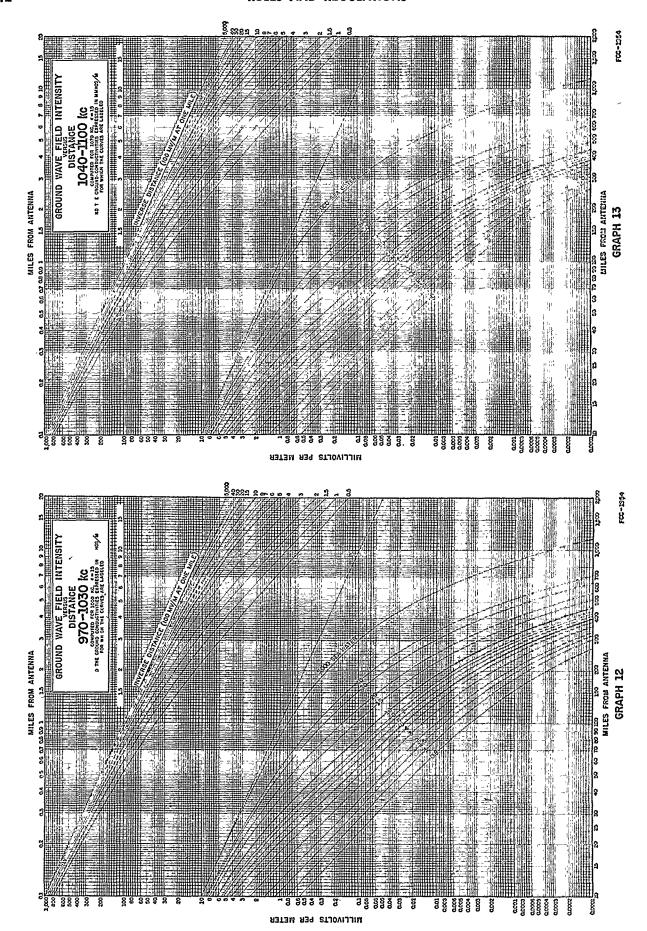
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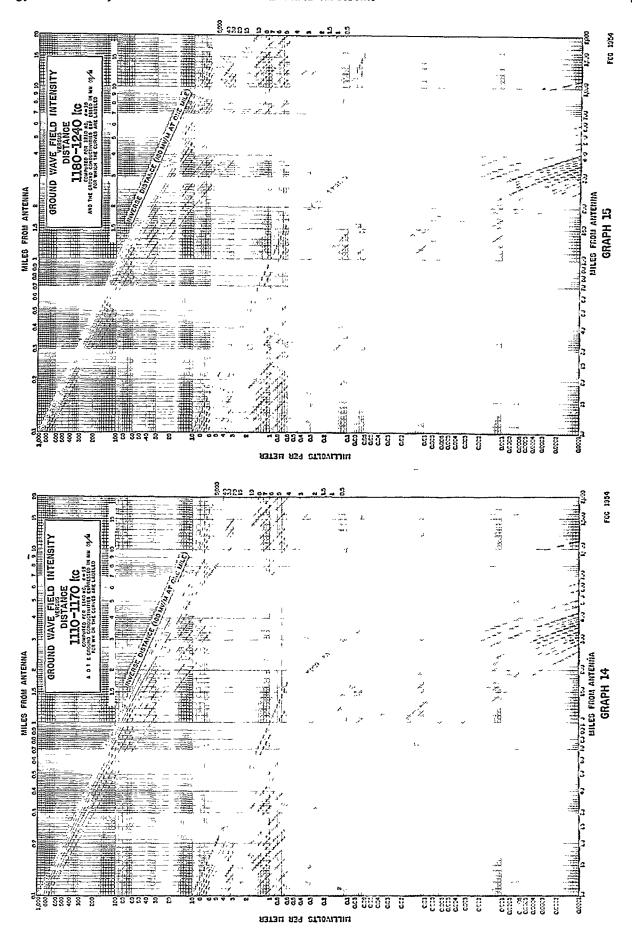
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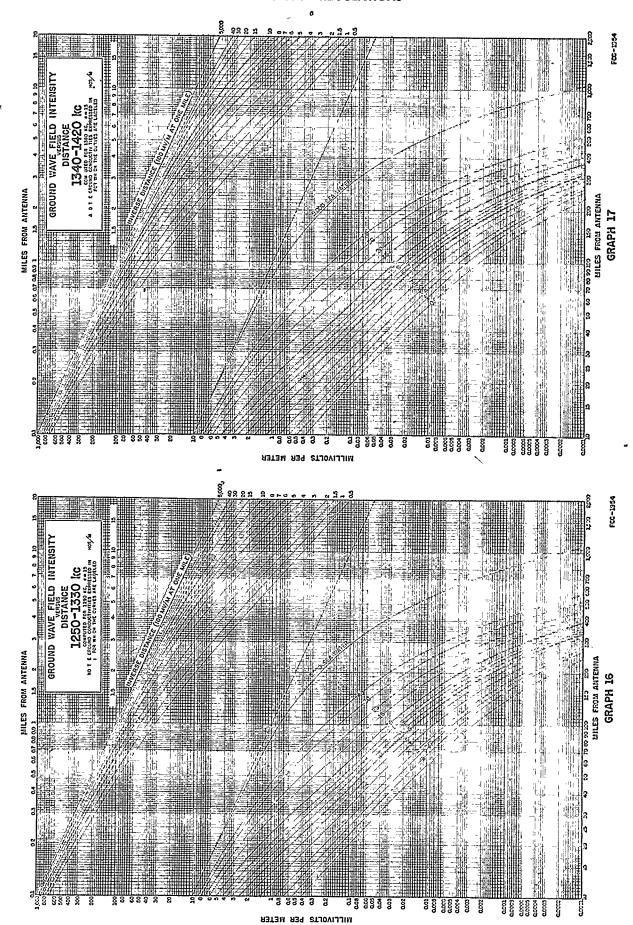
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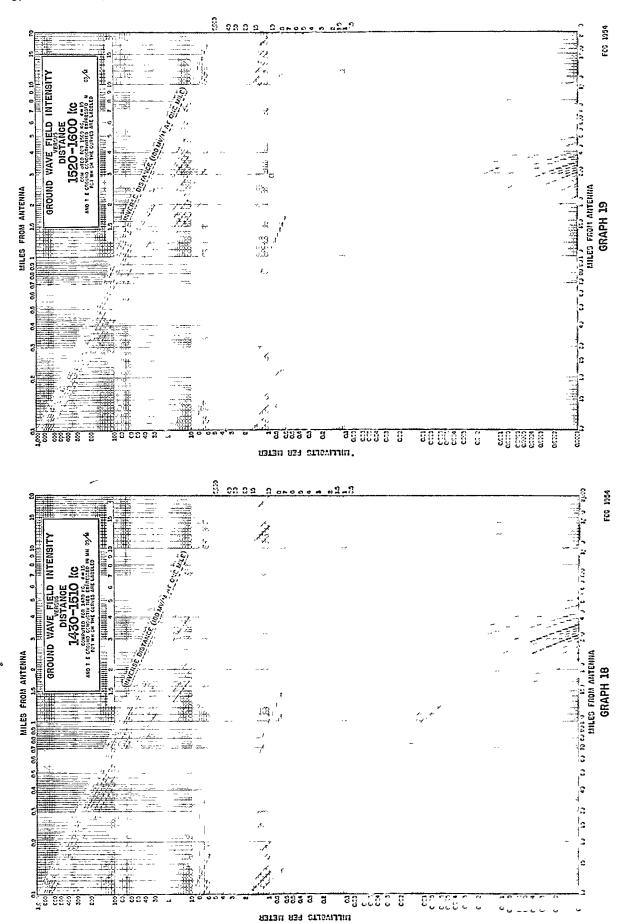


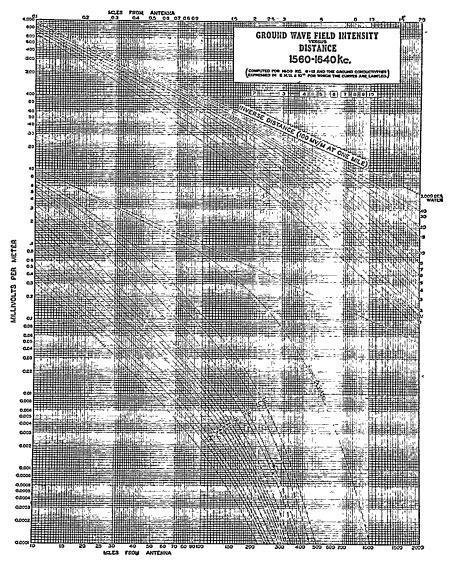




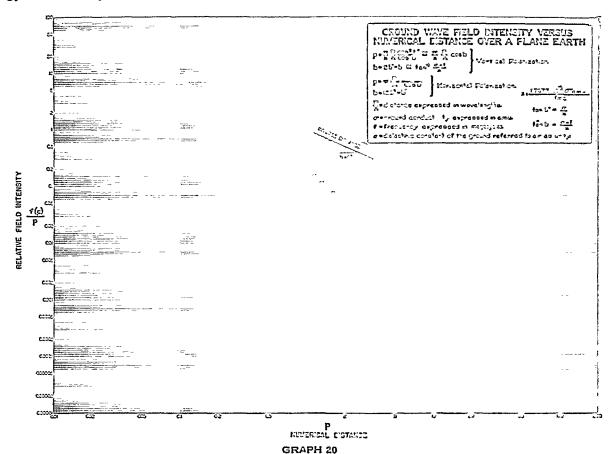








GRAPH 19-A



§ 3.185 Computation of interfering signal from a directional antenna. (a) In case of an antenna directional in the horizontal plane, the groundwave interference can be readily computed from the calculated horizontal pattern by determining the vectors toward the service area of the station to be protected and apply these values to the groundwave curves set out in § 3.183.

(b) For signals from stations operating on clear channels, in case of determining skywave interference from an antenna with a vertical pattern different from that on which Figure 1 of § 3.190 is predicated (the basis of the night mileage separation tables) it is necessary to compare the appropriate vectors in the vertical plane.

(c) The skywave curves entitled "Average Skywave Field Intensity" (corresponding to the second hour after sunset at the recording station) as shown in Figure 1 of § 3.190 are based on antenna systems having height of 0.311 wave length (112°) and producing a vertical pattern as shown in Figure 5 of § 3.190. A nondirectional antenna system, as well as a directional antenna system having vertical patterns other than essentially the same as shown, must be converted to the pattern of a 0.311 wave length antenna having the same field intensity at the critical angle as does the pattern of the antenna involved.

(d) Example of the use of skywave

Figure 6 of § 3.190 is a graph entitled "Variation With Distance of Two Important Parameters in the Theory of Sky

Wave Propagation." The curve for o showing the angle above the horizon at which radiation occurs plotted against distance, must be used for this purpose. For instance, assuming the station with which interference may be empected is located at a distance of 450 miles from a proposed station, the critical angle of radiation as determined from this curve is approximately 15° Therefore, if the vertical pattern of the proposed station in the direction of the other station is such that at 15° above the horizon the radiation is 1.3 times that from an antenna having a vertical pattern as shown in Figure 5 of § 3.190 and producing the same field intensity at 1 mile in the horizontal plane, the interfering agnal would be 1.3 times that determined from Figure 1 of § 3.190 for an antenna having the same field intensity in the horizontal plane. That is, if the field intensity in the horizontal plane of the proposed station is 124 mv/m the interfering field intensity exceeded 10 percent of the time at the other station would be

140;(1.30;
$$\frac{124}{100}$$
 or 225 uv/m

and would cause interference to the 4.5 my/m ground wave contour of the existing station.

(e) For signals from station on regional and local channels, in computing the 10% skywave (interference) field intensity values of Class III and Class IV stations, Fig. 2 of § 3.190 is to be used in place of Figure 1 of § 3.190. (Certain simplifying assumptions may be made in the case of Class IV stations on local

channels: See note to § 3.182 (a) (4)) Since Figure 2 of § 3.190 is predicated upon a radiated field of 100 my/m at one mile in the pertinent direction, no comparison with the vertical pattern of a 0.311 wavelength antenna is to be made. Instead the appropriate radiated field in the vertical plane corresponding to the distance to the receiving station, divided by 100, is multiplied into the value of 10% skywave field intensity determined from Figure 2 of § 3.190. There are two new factors to be considered, however, namely the variation of received field with latitude of the path and the variation of pertinent vertical angle due to variations of ionosphere height and ionosphere scattering.

(f) Figure 2 of § 3.180, "10" Shywave Signal Range Chart," shows the 10% chywave signal as a function of the latitude of the transmission path and the distance from a transmitting antenna with a radiated field of 100 my/m at the partinent angle for the distance. The latitude of the transmission path is defined as the geographic latitude of the midpoint between the transmitter and the receiver. Latitude 35° should be used in case the midpoint of the path lies below 35° North and latitude 50° chould be used in case the midpoint of the path lies above 50° North.

(g) Figure 6-A of § 3.160, entitled "Angles of Departure vs. Transmission Range," is to be used in determining the angles in the vertical pattern of the antenna of an interfering station to be considered as pertinent to transmission by one reflection. Corresponding to any

given distance, the curves 4 and 5 indicate the upper and lower angles within which the radiated field is to be considered. The maximum value of field intensity occurring between these angles will be used to determine the multiplying factor for the 10% skywave field intensity determined from Figure 2 of § 3.190. (Curves 2 and 3 are considered to represent the variation due to the variation of the effective height of the E-layer while Curves 4 and 5 extend the range of pertinent angles to include a factor which allows for scattering. The dotted lines are included for information only.)

(h) In the case of non-directional vertical antennas, the vertical distribution of relative fields for several heights, assuming sinusoidal distribution of current along the antenna, is shown in Figure 5 of § 3.190. In the case of directional antennas the vertical pattern in the great circle direction toward the point of reception in question must first be calculated. Then for the distance to the points, the upper and lower pertinent angles are determined from Figure 6-A of § 3.190. The ratio of the largest value of radiated field occurring between these angles, to 100 mv/m (for which Figure 2 of § 3.190 is drawn) is then used as the multiplying factor for the value of the field read from the curves of Figure 2 of § 3.190. Note that while the accuracy of the curves is not as well established by measurements for distances less than 250 miles as for distances in excess of 250 miles, the curves represent the most accurate data available today. Pending accumulation of additional data to establish firm standards for skywave calculations in this range, the curves may be used. In cases where the radiation in the vertical plane, in the pertinent azimuth, contains a large lobe at a higher angle than the pertinent angle for one reflection the method of calculating interference will not be restricted to that described above, but each such case will be considered on the basis of the best knowledge available.

(i) Example, suppose it is desired to determine the amount of interference to a Class III station at Portland, Oregon, caused by another Class III station at Los Angeles, California, which is radiating a signal of 560 my/m unattenuated at one mile in the great circle direction of Portland, using a 0.5 wavelength antenna. The distance is 825 miles. From Figure 6-A of § 3.190 the upper and lower pertinent angles are 7° and 3.5° and, from Figure 5 of § 3.190 the maximum radiation within these angles is 99% of the horizontal radiation or 554 mv/m at 1 mile. The latitude of the path is 39.8° N and from Figure 2 of § 3.190, the 10% skywave field at 825 miles is 0.050 mv/m for 100 mv/m radiated. Multiplying by 554/100 to adjust the value to the actual radiation gives 0.277 mv/m. At 20 to 1 ratio the limitation to the Portland station is to the 5.5 mv/m contour.

(j) When the distance is large, more than one reflection may be involved and due consideration must be given each appropriate vector in the vertical pattern, as well as the constants of the earth where reflection takes place between the

transmitting station and the service area to which interference may be caused.

§ 3.186 Field intensity measurements in allocation, establishment of effective field at one mile. (a) Section 3.45 provides that certain minimum field intensities are acceptable in lieu of the required minimum physical vertical heights of the antennas proper. Also in other allocation problems, it is necessary to determine the effective field at 1 mile. The following requirements shall govern the taking and submission of data on the field intensity produced:

(1) Beginning as near to the antenna as possible without including the induction field and to provide for the fact that a broadcast antenna not being a point source of radiation (not less than one wave length or 5 times the vertical height in the case of a single element, i. e., nondirectional antenna or 10 times the spacing between the elements of a measurements directional antenna) shall be made on eight or more radials, at intervals of approximately one-tenth mile up to 2 miles from the antenna, at intervals of approximately one-half mile from 2 miles to 6 miles from the antenna. at intervals of approximately 2 miles from 6 miles to 15 or 20 miles from the antenna, and a few additional measurements if needed at greater distances from the antenna. Where the antenna is rurally located and unobstructed measurements can be made, there shall be as many as 18 or 20 measurements on each radial. However, where the antenna is located in a city where unobstructed measurements are difficult to make, measurements shall be made on each radial at as many unobstructed locations as possible, even though the intervals are considerably less than stated above, particularly within 2 miles of the antenna. In cases where it is not possible to obtain accurate measurements at the closer distances (even out to 5 or 6 miles due to the character of the intervening terrain) the measurements at greater distances should be made at closer intervals. (It is suggested that "wave tilt" measurements may be made to determine and compare locations for taking field intensity measurements, particularly to determine that there are no abrupt changes in ground conductivity or that reflected waves are not causing abnormal intensities.)

(2) The data required by subparagraph (1) of this paragraph should be plotted for each radial in accordance with either of the two methods set forth below.

- (i) Using log-log coordinate paper, plot field intensities as ordinate and distance as abscissa.
- (ii) Using semi-log coordinate paper, plot field intensity times distance as ordinate on the log scale and distance as abscissa on the linear scale.
- (3) However, regardless of which of the methods in subparagraph (2) of this paragraph is employed, the proper curve to be drawn through the points plotted shall be determined by comparison with the curves in § 3.184 as follows: Place the sheet on which the actual points have been plotted over the appropriate Graph in § 3.184, hold to the light if necessary

and adjust until the curve most closely matching the points is found. This curve should then be drawn on the sheet on which the points were plotted, together with the inverse distance curve corresponding to that curve. The field at 1 mile for the radial concerned shall be the ordinate on the inverse distance curve at 1 mile.

(4) When all radials have been analyzed in accordance with subparagraph (3) of this paragraph, a curve shall be plotted on polar coordinate paper from the fields obtained, which gives the inverse distance field pattern at 1 mile. The radius of a circle, the area of which is equal to the area bounded by this pattern, is the effective field. (See § 3.14.)

(5) While making the field intensity survey, the output power of the station shall be maintained at the licensed power as determined by the direct method. To do this it is necessary to determine accurately the total antenna resistance (the resistance variation method, the substitution method or bridge method is acceptable) and to measure the antenna current by means of an ammeter of acceptable accuracy. (See §§ 3.39 and 3.54.)

(b) Complete data taken in conjunction with the field intensity measurements shall be submitted to the Commission in affidavit form including the following:

(1) Tabulation by number of each point of measurement to agree with the map required in (2) below and the field intensity meter reading, the attenuation constant, the field intensity (E), the distance from the antenna (D) and the product of the field intensity and distance (ED) (if data for each radial are plotted on semi-logarithmic paper, see above) for each point of measurement.

(2) Map showing each point of measurement numbered to agree with tabulation required above.

(3) Description of method used to take field intensity measurements.

(4) The family of theoretical curves used in determining the curve for each radial properly identified by conductivity and dielectric constants.

(5) The curves drawn for each radial and the field intensity pattern.

(6) Antenna resistance measurement:(i) Antenna resistance at operating

frequency.

(ii) Description of method employed.

(ii) Description of method employed.(iii) Tabulation of complete data.

(iv) Curve showing antenna resistance versus frequency.

- ance versus irequency.

 (7) Antenna current or currents maintained during field intensity measurements.
- (8) Description, accuracy, date, and by whom each instrument was last callbrated.
- (9) Name, address, and qualifications of the engineer making the measurements.
- (10) Any other pertinent information.
- § 3.187 [Reserved.]
- § 3.188 Location of transmitters. (a) The four primary objectives to be obtain in the selection of a site for a transmitter of a broadcast station are as follows:

- (1) To serve adequately the center of population in which the studio is located and to give maximum coverage to adjacent areas.
- (2) To cause and experience minimum interference to and from other stations.
- (3) To present a minimum hazard to air navigation consistent with objectives (1) and (2)
- (4) To fulfill certain other requirements given below.
- (b) The site selected should meet the following conditions:
- (1) A minimum field intensity of 25 to 50 my/m will be obtained over the business or factory areas of the city.
- (2) A minimum field intensity of 5 to 10 my/m will be obtained over the most distant residential section.
- (3) The absorption of the signal is the minimum for any obtainable sites in the area. As a guide in this respect the absorption of the signals from other stations in that area should be followed, as well as the results of tests on other sites.
- (4) The population within the blanket contour does not exceed that specified by § 3.24 (g)
- (c) In selecting a site in the center of a city it is usually necessary to place the radiating system on the top of a building. This building should be large enough to permit the installation of a satisfactory ground and/or counterpoise system. Great care must be taken to avoid selecting a building surrounded by taller buildings or where any nearby building higher than the antenna is located in the direction which it is desired to serve. Such a building will tend to cast "radio shadows" which may materially reduce the coverage of the station in that direction. Irrespective of the height of surrounding buildings, the building on which the antenna is located should not have height of approximately onc-quarter wavelength. A study of antenna systems located on buildings tends to indicate that where the building is approximately a quarter wavelength in height, the efficiency of radiation may be materially reduced.
- (d) Particular attention must be given to avoiding cross-modulation. In this connection, attention is invited to the fact that it has been found very unsatisfactory to locate broadcast stations so that high signal intensities occur in areas with overhead electric power or telephone distribution systems and sections where the wiring and plumbing are old or improperly installed. These areas are usually found in the older or poorer sections of a city. These conditions give rise to cross-modulation interference due to the nonlinear conductivity characteristics of contacts between wiring, plumbing, or other conductors. This type of interference is independent of the selectivity characteristics of the receiver and normally can be eliminated only by correction of the condition causing the interference. Cross-modulation tends to increase with frequency and in some areas it has been found impossible to eliminate all sources of cross-modulation, resulting in an unsatisfactory condition for both licensee and listeners. The Commission will not authorize, (1)

new stations (2) increased facilities to existing stations, or (3) auxiliary transmitters, for use with other than the authorized antenna system of the main transmitter, located in such areas or utilizing roof-top antennas, when the operating power would be in excess of 500 watts.

- (e) If it is determined that a site should be selected removed from the city, there are several general conditions to be followed in determining the exact site. Three maps should be given consideration if available:
- (I) Map of the density of population and number of people by sections in the area. (See Bureau of Census series P-D and H-E available from Superintendent of Documents, Washington 25, D. C.)
- (2) Geographical contour map with contour intervals of 20 to 50 feet.
- (3) Map showing the type, nature and depth of the soil in the area with special reference to the condition of the moisture throughout the year.
- From these maps a site should be selected with a minimum number of intervening hills between it and the center of the city. In general, because of ground conditions, it is better to select a site in a low area rather than on top of a hill, and the only condition under which a site on top of a hill should be selected is that it is only possible by this means to avoid a substantial number of hills, between the site and the center of a city with the resulting radio shadows. If a site is to be selected to serve a city which is on a general sloping area, it is generally better to select a site below the city than above the city.
- (f) If a compromise must be made between probable radio shadows from intervening hills and locating the transmitter on top of a hill, it is generally better to compromise in favor of the low area, where an efficient radiating system may be installed which will more than compensate for losses due to shadows being caused by the hills, if not too numerous or too high. Several transmitters have been located on top of hills, but so far as data has been supplied not a single installation has given superior efficiency of propagation and coverage.
- (g) The ideal location of a broadcast transmitter is in a low area of marshy or "crawfishy" soil or area which is damp the maximum percentage of time and from which a clear view over the entire center of population may be had and the tall buildings in the business section of the city would cast a shadow across the minimum residential area.
- (h) The type and condition of the soil or earth immediately around a site is very important. Important, to an equal extent, is the soil or earth between the site and the principal area to be served. Sandy soil is considered the worst type, with glacial deposits and mineral-ore areas next. Alluvial, marshy areas and salt-water bogs have been found to have the least absorption of the signal. One is fortunate to have available such an area and, if not available, the next best condition must be selected.
- (i) Figures M3 and R3 of § 3.190 indicate effective conductivity values in the

United States and are to be used for determining the extent of broadcast station coverage when adequate field intensity measurements over the path in question are not available. Since the values specified are only for general areas and since conductivity values over particular paths may vary widely from those shown, caution must be exercised in using the maps for selection of a satisfactory transmitter site. Where the submission of field intensity measure-Where the ments is deemed necessary or advisable, the Commission, in its discretion, may require an applicant for new or changed broadcast facilities to submit such data in support of its application.

(j) In general, broadcast transmitters operating with approximately the same power can be grouped in the same approximate area and thereby reduce the interference between them. If the city is of irregular shape, it is often possible to take advantage of this in selecting a suitable location that will give a maximum coverage. The maps giving the density of population will be a key to this. The map giving the elevation by contours will be a key to the obstructing hills between the site and city. The map of the soil conditions will assist in determining the efficiency of the radiating system that may be erected and the absorption of the signal encountered in the surrounding area.

(k) Another factor to be considered is the relation of the site to airports and airways. Procedures and standards with respect to the Commission's consideration of proposed antenna structures which will serve as a guide to persons intending to apply for radio station licenses are contained in Part 17 of this chapter (Rules Concerning the Construction, Marking and Lighting of Antenna Structures)

(1) In finally selecting the site, consideration must be given to the required space for erecting an efficient radiating system, including the ground or counterpolse. It is the general practice to use direct grounds consisting of a radial buried wire system. If the area is such that it is not possible to get such ground system in soil that remains moist throughout the year, it probably will be found better to erect a counterpoise. (Such a site should be selected only as a last resort.) It, like the antenna itself, must of course be designed properly for the operating frequency and other local conditions.

(m) While an experienced engineer can sometimes select a satisfactory site for a 100-watt station by inspection, it is necessary for a higher power station to make a field-intensity survey to determine that the site selected will be entirely satisfactory. There are several facts that cannot be determined by mspection that make a survey very desirable for all locations removed from the city. Often two or more sites may be selected that appear to be of equal promise. It is only by means of field-intensity surveys taken with a transmitter at the different sites or from measurements on the signal of nearby stations traversing the terrain involved that the most desirable site can be determined. There

are many factors regarding site efficiency that cannot be determined by any other method. When making the final selection of a site, the need for a field-intensity survey to establish the exact conditions cannot be stressed too strongly. The selection of a proper site for a broadcast station is an important engineering problem and can only be done properly by experienced radio engineers

§ 3.189 Minimum antenna heights or field intensity requirements. (a) Section 3.45 requires that all applicants for new, additional, or different broadcast facilities and all licensees requesting authority to move the transmitter of an existing station, shall specify a radiating system, the efficiency of which complies with the requirements of good engineering practice for the class and power of the station.

(b) The specifications deemed necessary to meet the requirements of good engineering practice at the present state of the art are set out in detail below.

(1) The licensee of a standard broadcast station requesting a change in power, time of operation, frequency, or transmitter location must also request authority to install a new antenna system or to make changes in the existing antenna system which will meet the minimum height requirements, or submit evidence that the present antenna system meets the minimum requirements with respect to field intensity, before favorable consideration will be given vorable consideration will be given thereto. (See § 3.186.) In the event it is proposed to make substantial changes in an existing antenna system, the changes shall be such as to meet the minimum height requirements or will be permitted subject to the submission of

field intensity measurements showing that it meets the minimum requirements with respect to effective field intensity.

(2) These minimum actual physical vertical heights of antennas permitted to be installed are shown by curves A, B, and C of Figure 7 of § 3.190 as follows:

(i) Class IV stations, 150 feet or a minimum effective field intensity/of 150 mv/m for 1 kilowatt (100 watts 47.5 mv/m, and 250 watts 75 mv/m) (This height applies to a Class IV station on a local channel only. In the case of a Class IV station assigned to a regional channel Curve A shall apply.)

(ii) Class II and III stations, or a minimum effective field intensity of 175 my/m for 1 kilowatt.

(iii) Class I stations, or a minimum effective field intensity of 225 mv/m for 1 kilowatt.

(3) The heights given on the graph for the antenna apply regardless of whether the antenna is located on the ground or on a building. Except for the reduction of shadows, locating the antenna on a building does not necessarily increase the efficiency and where the height of the building is in the order of a quarter wave the efficiency may be materially reduced.

(4) To obtain the maximum efficiency of which any antenna is capable a good ground system must be employed (a counterpoise may be substituted under certain conditions)

(5) At the present development of the art, it is considered that where a vertical radiator is employed with its base on the ground, the ground system should consist of buried radial wires at least one-fourth wave length long. There should be as many of these radials evenly spaced as practicable and in no event less than 90. (120 radials of 0.35 to 0.4 of a wave length

in length and spaced 3° is considered an excellent ground system and in case of high base voltage, a base screen of suitable dimensions should be employed.)

(6) It should be borne in mind that the above specifications are the minimum and where possible better antenna and ground systems should be installed.

(7) In case it is contended that the required antenna efficiency can be obtained with an antenna of height or ground system less than the minimum specified, a complete field intensity survey must be supplied to the Commission showing that the field intensity at a mile without absorption fulfills the minimum requirements. (See § 3.186.) This field survey must be made by a qualified engineer using equipment of acceptable accuracy.

(8) The main element or elements of a directional antenna system shall meet the above minimum requirements with respect to height or effective field intensity. No directional antenna system will be approved which is so designed that the effective field of the array is less than the minimum prescribed for the class of station concerned, or in case of a Class I station less than 90 percent of the ground wave field which would be obtained from a perfect antenna of the height specified by Figure 7 of § 3.190 for operation on frequencies below 1000 kilocycles, and in the case of a Class II or III station less than 90 percent of the ground wave field which would be obtained from a perfect antenna of the height specified by Figure 7 of § 3.190 for operation on frequencies below 750 kilocycles.

(9) Before any changes are made in the antenna system, it is necessary to submit full details to the Commission for approval. These data may be submitted by letter.

§ 3.190 Engineering charts.

Note: The charts as reproduced herein, due to their small scale, are not to be used in connection with material submitted to the F. C. C. $\,$

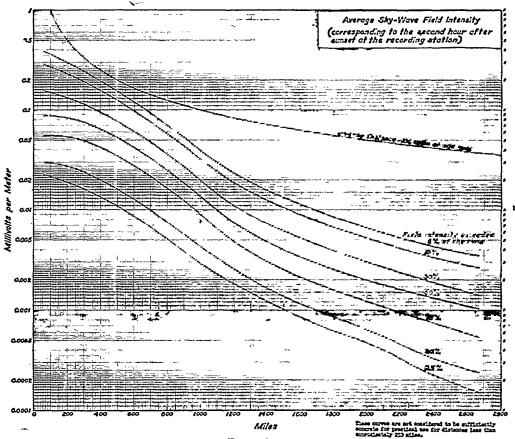


FIGURE 1.

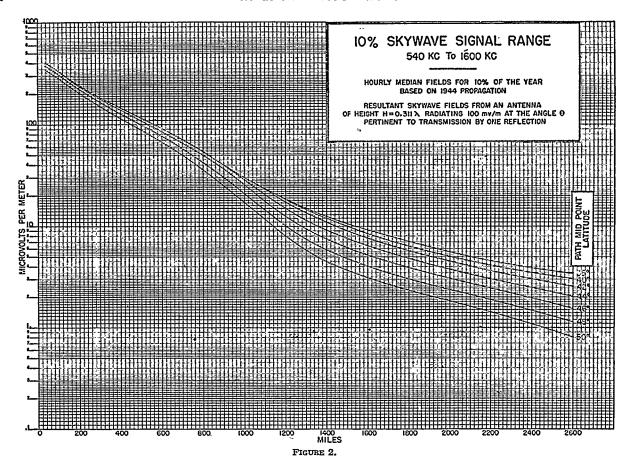


FIGURE R3.

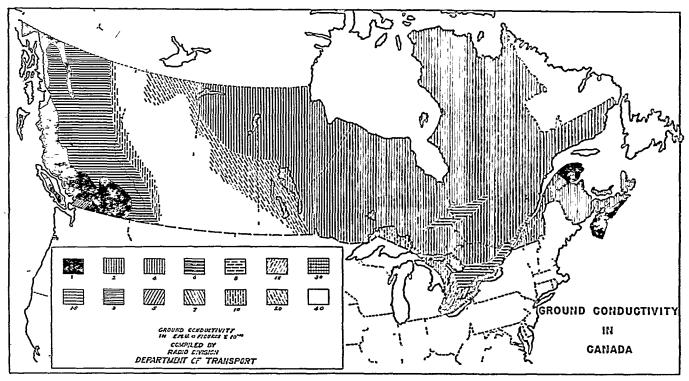


FIGURE 4.

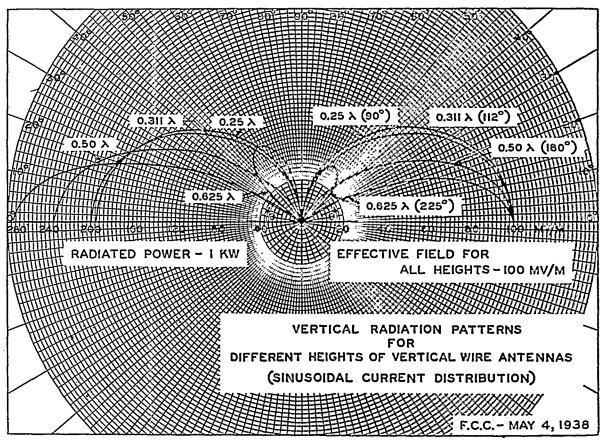


FIGURE 5.

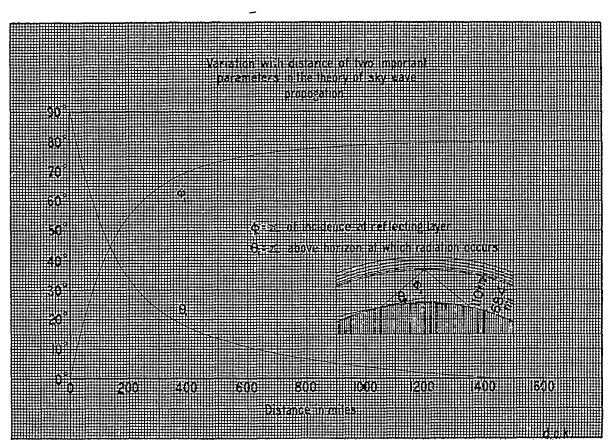
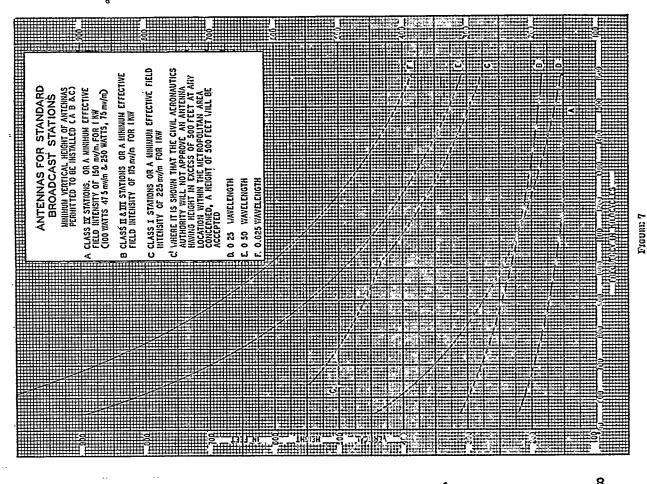
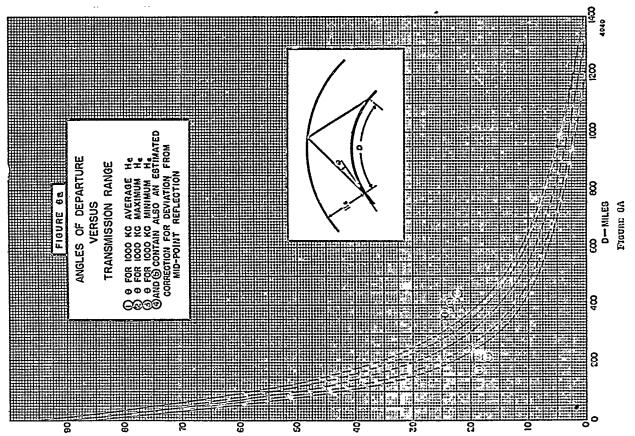


FIGURE 6.





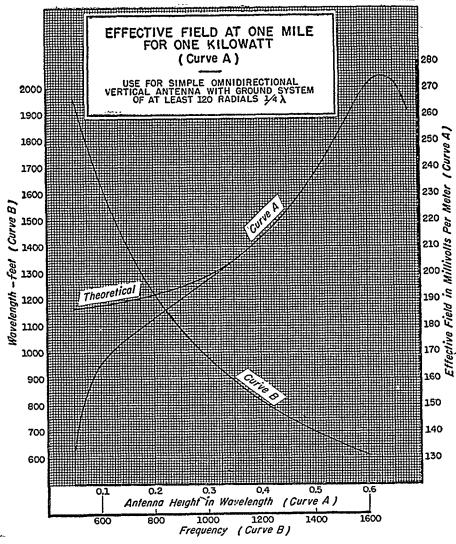


FIGURE 8.

SUBPART B-FM BROADCAST STATIONS

CLASSIFICATION OF FM BROADCAST STATIONS AND ALLOCATION OF FREQUENCIES

§ 3.201 Numerical designation of FM broadcast channels. For convenience, the frequencies available for FM broadcasting (including those assigned to noncommercial educational broadcasting) are given numerical designations which are shown in the table below.

Frequency	Channel	Frequency	Channel
(Mc)	No.	[(Mc)	
88.1	201	91:7	219
88.3	202	91.9	220
88.5	203		221
88.7	204	92.3	222
88.9	205	92.5	223
89.1	206	92.7	224
89.3	207	92.9	225
89.5	208	93.1	226
89.7	209	93.3	227
89.9	210	93.5	228
90.1	211	93.7	229
90.3	212	93.9	230
90.5	213	94.1	231
90.7	214	94.3	232
90,9	215	94.5	233
91.1	216	94.7	
91.3	217	94.9	235
91.5	218	95.1	236

Frequency Channel	Frequency	Channel
(Mc) No.	(Mc)	No.
95.3 237	101.7	269
95.5 238	101.9	270
95.7 239	102.1	271
95.9 240	102.3	272
96.1 241	102.5	273
96.3 242		274
96.5 243	102.9	275
96.7 244	103.1	276
96.9 245	103.3	277
97.1246	103.5	
97.3 247	103.7	279
97.5 248	103.9	280
97.7 249	104.1	281
97.9 250	104.3	282
98.1 251	104.5	\283
98.3 252	104.7	
98.5 253	104.9	285
98.7 254	105.1	
98.9 255	105.3	
99.1 256	105.5	288
99.3 257	105.7	289
99.5 258	105.9	
99.7 259	106.1	291
99.9 260	106.3	292
100.1 261	106.5	293
100.3 262	106.7	294
100.5 263	106.9	295
100.7 264	107.1	
100.9 265	107.3	
101.1 266	107.5	298
101.3 267	107.7	299

101.5____ 268

§ 3.202 Areas of the United States. For the purpose of allocation the United States is divided into two areas. The first area—area I—includes southern New Hampshire; all of Massachusetts, Rhode Island, and Connecticut; south-eastern New York as far north as Albany-Troy-Schenectady; all of New Jersey, Delaware, and the District of Columbia; Maryland as far west as Hagerstown; and eastern Pennsylvania as far west as Harrisburg. The second area—area II—comprehends the re-mainder of the United States not included in area I.

NOTE: In some of the territory contiguous to area I, the demand for frequencies requires that applications be given careful study and consideration to insure an equitable distri-bution of facilities throughout the region. This region includes the remainder of Mary-land, Pennsylvania, and New York (except the northeastern corner) not included in area I; Virginia, West Virginia, North Carolina, South Carolina, Ohio, and Indiana; southern Michigan as far north as Saginaw; eastern Illinois as far west as Rockford-Decatur; and southeastern Wisconsin as far north as Sheboygan. Other regions may be added as required.

§ 3.203 Class A stations. (a) A Class A station is a station which operates on a Class A channel and is designed to render service primarily to a community or to a city or town other than the principal city of an area, and the surrounding rural area. The coverage of a Class A station shall be not more than the equivalent of 1 kilowatt effective radiated power and antenna height of 250 feet above average terrain, as determined by the methods prescribed in the Technical Standards of this subpart. (For the purpose of determining equivalent coverage, the 1 mv/m contour should be used.) A Class A station will not be licensed with more than 1 kilowatt effective radiated power. The power rating of the transmitter used for a Class A station shall be not less than 250 watts nor more than 1 kilowatt. The signal intensity requirements of § 3.311 shall determine the minimum coverage of a Class A station. Class A stations will normally be protected to the 1 my/m contour however, assignments will be made in a manner to insure, insofar as possible, a maximum of service to all listeners, whether urban or rural, giving consideration to the minimum signal capable of providing service.

(b) The following frequencies, except as provided in paragraphs (c) and (d) of this section, are designated as Class A channels and are assigned for use by Class A stations:

Channel

rrequency	Chamei	Frequency	Otto it it
(Mc)	No.	(Mo)	No.
	221	100.1	261
	224	100.9	268
	228	101.7	269
	232	102.3	272
	237		276
	240	103.9	280
	244	104.9	286
	249	105.5	288
	252	106.3	292
	257	107.1	296

These channels are available for assignment (1) in cities which are not the central city or cities of a metropolitan district, and (2) in central cities of F metropolitan districts which have fewer than six Class B stations.

(c) In the Territory of Hawaii, the frequency band 98-108 Mc is allocated for nonbroadcast use. The frequencies 98.1 through 107.9 Mc, inclusive (Channels 251 through 300 inclusive) will not be assigned in the Territory of Hawaii for use by FM broadcast stations.

(d) In the Territory of Alaska the frequency band 88–100 Mc is allocated to Government radio services and the non-Government fixed service only. The frequencies 88.1 Mc through 99.9 Mc (Channels 201 through 260 inclusive) will not be assigned in the Territory of Alaska for use by FM Broadcast stations.

§ 3.204 Class B stations. (a) A Class B station is a station which operates on a Class B channel and is designed to render service primarily to a metropolitan district or principal city and the surrounding rural area, or to rural areas removed from large centers of population. The service area of a Class B station will not be protected beyond the 1 mv/m contour; however, Class B assignments will be made in a manner to insure, insofar as possible, a maximum of service to all listeners, whether urban or rural, giving consideration to the minimum signal capable of providing service, Standard power ratings of transmitters used for Class B stations shall be 1 kw. or greater. The signal intensity requirements of § 3.311 shall determine the minimum coverage of a Class B station. In the following subparagraphs antenna height above average terrain and effective radiated power are to be determined by the methods prescribed in the Technical Standards of this subpart.

(1) The coverage of a Class B station in Area I shall be not more than the equivalent of 20 kilowatts effective radiated power and antenna height of 500 feet above average terrain. (For the purpose of determining equivalent coverage, the 1 mv/m contour should be used.) A class B station in Area I will not be licensed with an effective radiated power greater than 20 kilowatts.

(2) The coverage of a Class B station in Area II shall normally be not more than the equivalent of 20 kilowatts effective radiated power and antenna height of 500 feet above average terrain. (For the purpose of determining equivalent coverage, the 1 mv/m contour should be used.) The use of greater power and antenna height will be encouraged in those portions of Area II where such use would not result in undue interference to stations already authorized or to probable assignments insofar as can be determined at the time of the grant. In such case, the power, antenna height, and area will be determined on the merits of each application with particular attention being given to rural areas which would not otherwise receive service.

(b) The following frequencies, except as provided in paragraphs (c) and (d) of this section, are designated as Class B channels and are assigned for use by Class B stations:

Frequency	C hanne l	Frequency	Channel
(Mc)	No.	(Mc) ·	No.
92.3	222	100.3	263
92.5	223	100.5	263
92.9	225	100.7	264
93.1	226	101.1	268
93.3	227	101.3	267
93.7	229	101.5	268
93.9	230	101.9	270
94.1	231	102.1	271
94.5	233	102.5	273
94.7	234	102.7	274
94.9	235	102.9	275
95.1	236	103.3	277
95.5	238	103.5	278
95.7	239	103.7	279
96.1	241	104.1	281
96.3	243	104.3	282
96.5	243	104.5	283
96.9	245	104.7	284
97.1	246	105.1	286
97.3	247	105.3	287
97.5	248	105.7	289
97.9	250	105.9	290
98.1	251	106.1	291
98.5	253	106.5	293
98.7	254	106.7	
98.9	255	106.9	295
99.1	256	107.3	297
99.5	258	107.5	298
99.7	259	107.7	289
99.9	260	107.9	300

(c) In the Territory of Hawaii the frequency band 98-108 Mc is allocated for nonbroadcast use. The frequencies 98.1 through 107.9 Mc inclusive (Channels 251 through 300, inclusive) will not be assigned in the Territory of Hawaii for use by FM broadcast stations.

(d) In the Territory of Alaska the frequency band 88–100 Mc is allocated exclusively to Government radio services and the non-Government fixed service. The frequencies 88.1 Mc through 99.9 Mc (Channels 201 through 260 inclusive) will not be assigned in the Territory of Alaska for use by FM Broadcast stations.

§ 3.205 Station location and program origination. (a) Except as provided in paragraph (b) of this section, each FM broadcast station will be licensed to serve primarily a particular city, town, or other political subdivision which will be specified in the station license and the station will be considered to be located in such place. Each station shall maintain a studio, which will be known as the main studio, in the place where the station is located provided that the main studio may be located at the transmitter site whether or not the transmitter site is in the place where the station is located. A majority (computed on the basis of duration and not number) of a station's programs or in the case of a station affiliated with a network, twothirds of such station's non-network programs, whichever is smaller, shall originate from the main studio or from other studios or remote points situated in the place where the station is located.

(b) Stations will be licensed to serve more than one city, town, or other political subdivision, only where a satisfactory showing is made that each such place meets all the requirements of the rules and Technical Standards of this subpart with respect to the location of main studios; that the station can and will originate a substantial number of local live programs from each such place; and that the requirements as to origina-

tion of programs contained in paragraph (a) of this section would place an unreasonable burden on the station if it were licensed to serve only one city, town or other political subdivision. A station licensed to serve more than one place shall be considered to be located in and shall maintain main studios in each such place. With respect to such station the requirements as to origination of programs contained in paragraph (a) of this section shall be satisfied by the origination of programs from any or all of the main studios or from other studios and remote points situated in any or all of the places in which the main studios are located.

(c) The transmitter of each FM broadcast station shall be so located that satisfactory service is delivered to the city where the main studio is located, in accordance with the Technical Standards of this subpart: Provided, however Upon special showing of need, authorization may be granted to locate the transmitter so that adequate service is not rendered to this city, but in no event shall this city be beyond the 50 uv/m contour.

ADMINISTRATIVE PROCEDURE

§ 3.211 Application for FM broadcast stations. If the application is for a construction permit or for modification of an existing authorization, FCC Form 301 shall be filed; if for a license, FCC Form 302 shall be filed; if for a renewal of license, FCC Form 303 shall be filed.

§ 3.212 Full disclosures. Each application shall contain full and complete disclosures with regard to the real party or parties in interest, and their legal, technical, financial, and other qualifications, and as to all matters and things required to be disclosed by the application forms.

§ 3.213 Installation of apparatus. Applications for construction permits or modification thereof involving the installation of new transmitting apparatus should be filed at least 60 days prior to the contemplated installation.

§ 3.214 Period of construction. Each construction permit will specify a maximum of 60 days from the date of granting thereof as the time within which construction of the station shall begin, and a maximum of 6 months thereafter as the time within which construction shall be completed and the station ready for operation, unless otherwise determined by the Commission upon proper showing in any particular case.

§ 3.215 Forfeiture of construction permits: extension of time. (a) A construction permit shall be automatically forfeited if the station is not ready for operation within the time specified therein or within such further time as the Commission may have allowed for completion, and a notation of the forfeiture of any construction permit under this provision will be placed in the records of the Commission as of the expiration date.

(b) Any application for extension of time (FCC Form 701) within which to

construct a station shall be filed at least 30 days prior to the expiration date of such permit if the facts supporting such application for extension are known to the applicant in time to permit such filing. In other cases such applications will be accepted upon a showing satisfactory to the Commission of sufficient reasons for filing within less than 30 days prior to the expiration date. Such applications will be granted upon a specific and detailed showing that the failure to complete was due to causes not under the control of the grantee, or upon a specific and detailed showing of other matters sufficient to justify the extension.

- (c) If a construction permit has been allowed to expire for any reason, application may be made for a new permit on FCC Form 321, "Application for Construction Permit to Replace Expired Permit."
- § 3.216 Equipment tests. (a) During the process of construction of an FM broadcast station, the permittee, after notifying the Commission and Engineer in Charge of the radio district in which the station is located, may without further authority of the Commission, conduct equipment tests for the purpose of such adjustments and measurements as may be necessary to assure compliance with the terms of the construction permit, the technical provisions of the application therefor, the rules and regulations, and the applicable engineering standards.
- (b) The Commission may notify the permittee to conduct no tests or may cancel, suspend, or change the date for the beginning of equipment tests as and when such action may appear to be in the public interest, convenience, and necessity.
- (c) Equipment tests may be continued so long as the construction permit shall remain valid.
- (d) Inspection of a station will ordinarily be required during the equipment test period and before the commencement of the program test. After construction and after adjustments and measurements have been completed to show compliance with the terms of the construction permit, the technical provisions of the application therefor, the rules and regulations and the applicable engineering standards, the permittee should notify the Engineer in Charge of the radio district in which the station is located that it is ready for inspection.
- (e) The authorization for tests embodied in this section shall not be construed as constituting a license to operate but as a necessary part of construction.
- § 3.217 Program tests. (a) Upon completion of construction of an FM broadcast station in accordance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations and the applicable engineering standards, and when an application for station license has been filed showing the station to be in satisfactory operating condition. the permittee may request authority to conduct program tests: Provided, That such request shall be filed with the Com-

mission at least ten (10) days prior to the date on which it is desired to begin such operation and that the Engineer in Charge of the radio district in which the station is located is notified. (All data necessary to show compliance with the terms and conditions of the construction permit must be filed with the license application.)

(b) Program tests shall not commence until specific Commission authority is received. The Commission reserves the right to change the date of the beginning of such tests or to suspend or revoke the authority for program tests as and when such action may appear to be in the public interest, convenience, and necessity.

(c) Unless sooner suspended or revoked program test authority continues valid during Commission consideration of the application for license and during this period further extension of the construction permit is not required. Program test authority shall be automatically terminated by final determination upon the application for station license.

(d) All operation under program test authority shall be in strict compliance with the rules governing FM broadcast stations and in strict accordance with representations made in the application for license pursuant to which the tests were authorized.

(e) The granting of program test authority shall not be construed as approval by the Commission of the application for station license.

§ 3.218 Normal license period. All FM broadcast station licenses will be issued for a normal license period of three years. Licenses will be issued to expire at the hour of 3:00 a. m., e. s. t. in accordance with the following schedule and at three-year intervals thereafter.

(1) For stations located in Delaware and Pennsylvania, August 1, 1957.

- (2) For stations located in Maryland. District of Columbia, Virginia, West Virginia, October 1, 1957.
 (3) For stations located in North
- Carolina, South Carolina, December 1, 1957.
- (4) For stations located in Florida, Puerto Rico and Virgin Islands, Febru-
- ary 1, 1958. (5) For stations located in Alabama and Georgia, April 1, 1958.
- (6) For stations located in Arkansas. Louisiana and Mississippi, June 1, 1958.
 (7) For stations located in Tennessee,
- Kentucky and Indiana, August 1, 1958.
- (8) For stations located in Ohio and Michigan, October 1, 1958.
- (9) For stations located in Illinois and Wisconsin, December 1, 1958.
- (10) For stations located in Iowa and Missouri, February 1, 1956.
- (11) For stations located in Minnesota, North Dakota, South Dakota, Montana and Colorado, April 1, 1956.
- (12) For stations located in Kansas, Oklahoma, Nebraska, June 1, 1956.
- (13) For stations located in Texas, August 1, 1956...
- (14) For stations located in Wyoming. Nevada, Arizona, Utah, New Mexico and Idaho, October 1, 1956.
- (15) For stations located in Califorma, December 1, 1956.

- (16) For stations located in Washington, Oregon, Alaska and Hawaii, February 1, 1957.
- (17) For stations located in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont, April 1, 1957.
- (18) For stations located in New Jersey and New York, June 1, 1957.
- § 3.219 License, simultaneous modification and renewal. When an application is granted by the Commission necessitating the issuance of a modified license less than 60 days prior to the expiration date of the license sought to be modified. and an application for renewal of said license is granted subsequent or prior thereto (but within 30 days of expiration of the present license) the modified license as well as the renewal license shall be issued to conform to the combined action of the Commission.
- § 3.220 Renewal of license. (a) Unless otherwise directed by the Commission, each application for renewal of an FM broadcast station license shall be filed at least 90 days prior to the expiration date of the license sought to be renewed (FCC Form 303) No application for renewal of license of an FM broadcast station will be considered unless there is on file with the Commission, the information currently required by §§ 1.341 to 1.344 of this chapter, reference to which by date and file number shall be included in the application.
- (b) Whenever the Commission regards an application for a renewal of an FM broadcast station license as essential to the proper conduct of a hearing or investigation, and specifically directs that it be filed by a date certain, such application shall be filed within the time thus specified. If the licensee fails to file such application within the prescribed time, the hearing or investigation shall proceed as if such renewal application had been received.

§ 3.221 [Reserved.]

§ 3.222 Repetitious applications. (a) Where an applicant has been afforded an opportunity to be heard with respect to a particular application for a new FM broadcast station, or for change of existing service or facilities, and the Commission has, after hearing or default, denied the application or dismissed it with prejudice, the Commission will not consider another application for a station of the same class to serve in whole or in part the same area, by the same applicant or by his successor or assignee, or on behalf of or for the benefit of the original parties in interest, until after the lapse of 12 months from the effective date of the Commission's order.

(b) Where an appeal has been taken from the action of the Commission in denying a particular application, another application for the same class of broadcast station and for the same area, in whole or in part, filed by the same applicant or by his successor or assignee, or on behalf or for the benefit of the original parties in interest, will not be considered until the final disposition of such appeal.

§ 3.223 Assignment or transfer of control-(a) Voluntary, Application for consent to voluntary assignment of an FM broadcast station construction permit or license or for consent to voluntary transfer of control of a corporation holding an FM broadcast station construction permit or license shall be filed with the Commission on FCC Form 314 (Assignment of Licensee), FCC Form 315-(Transfer of Control) or FCC Form 316 (Short Form) at least 60 days prior to the contemplated effective date of assignment or transfer of control.

(b) Pro forma. Assignment or transfer applications shall be filed on FCC

Form 316 where:

(1) There is an assignment from an individual or individuals (including partnerships) to a corporation owned and controlled by such individuals or partnerships without any substantial change in their relative interests:

(2) There is an assignment from a corporation to its individual stockholders without effecting any substantial change in the disposition of their interests;

- (3) There is an assignment or transfer by which certain partners or stockholders retire but no new ones are brought in, provided that the interest transferred is not a controlling one;
- (4) There is a corporate reorganization which involves no substantial change in the beneficial ownership of the corporation;
- (5) There is an involuntary transfer to an Executor, Administrator or other court appointed officer caused by death or legal disability except that this form does not cover assignments (or transfers) from the Executor, Administrator or other court appointed officers to the ultimate beneficiary.
- (6) There is an assignment or transfer from a corporation to a wholly owned subsidiary thereof or vice versa, or where there is an assignment from a corporation to a corporation owned or controlled by the assignor stockholders without substantial change in their interests.

(7) There is an assignment of less than a controlling interest in a partner-

snip.

(c) Involuntary. In the event of the death or legal disability of a permittee or licensee, or a member of a partnership, or a person directly or indirectly in control of a corporation, which is a permittee or licensee:

(1) The Commission shall be notified in writing promptly of the occurrence of such death or legal disability, and

(2) Within 30 days after the occurrence of such death or legal disability, application on FCC Form 316 shall be filed for consent to involuntary assignment of such FM broadcast station permit or license or for involuntary transfer of control of such corporation to a person or entity legally qualified to succeed to the foregoing interests under the laws of the place having jurisdiction over the estate involved.

LICENSING POLICIES

§ 3.231 Exclusive affiliation of station. No license shall be granted to an FM broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or

hindered from, or penalized for, broadcasting the programs of any other network organization. (The term "network organization" as used herein includes national and regional network organizations. See ch. VII, J of Report on Chain Broadcasting.)

§ 3.232 Territorial exclusivity. license shall be granted to an FM broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which prevents or hinders another broadcast station serving substantially the same area from broadcasting the network's programs not taken by the former station, or which prevents or hinders another broadcast station serving a substantially different area from broadcasting any program of the network organization. This section shall not be construed to prohibit any contract, arrangement, or understanding between a station and a network organization pursuant to which the station is granted the first call in its primary service area upon the programs of the network organization.

§ 3.233 Term of affiliation. No license shall be granted to an FM broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which provides, by original terms, provisions for renewal, or otherwise for the affiliation of the station with the network organization for a period longer than 2 years: Provided, That a contract, arrangement, or understanding for a period up to 2 years, may be entered into within 6 months prior to the commencement of such period.

§ 3.234 Option time. No license shall be granted to an FM broadcast station which options for network programs any time subject to call on less than 56 days' notice, or more time than a total of 3 hours within each of four segments of the broadcast day, as herein described. The broadcast day is divided into four segments, as follows: 8 a. m. to 1 p. m., 1 p. m. to 6 p. m., 6 p. m. to 11 p. m., 11 p. m. to 8 a. m. (These segments are to be determined for each station in terms of local time at the location of the station but may remain constant througout the year regardless of shifts from standard to daylight saving time or vice versa.) Such options may not be exclusive as against other network organizations and may not prevent or hinder the station from optioning or selling any or all of the time covered by the option. or other time, to other network organiza-

Nore 1. As used in this section, an option is any contract, arrangement, or understanding, express or implied, between a station and a network organization which prevents or hinders the station from scheduling programs before the network agrees to utilize the time during which such programs are scheduled, or which requires the station to clear time already scheduled when the net-

work organization seeks to utilize the time.
Note 2: All time options permitted under
this section must be specified clock hours,
expressed in terms of any time system cet
forth in the contract agreed upon by the
station and network organization. Shifts

from daylight saving to standard time or vice versa may or may not chift the specified hours correspondingly as agreed by the station and network organization.

§ 3.235 Right to reject programs. No license shall be granted to an FM broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which (a), with respect to programs offered pursuant to an affiliation contract, prevents or hinders the station from rejecting or refusing network programs which the station reasonably believes to be unsatisfactory or unsuitable; or which (b), with respect to network programs so offered or already contracted for, prevents the station from rejecting or refusing any program which, in its opinion, is contrary to the public interest, or from substituting a program of outstanding local or national importance.

§ 3.236 Network ownership of stations. No license shall be granted to a network organization, or to any person directly or indirectly controlled by or under common control of a network organization, for an FM broadcast station in any locality where the existing FM broadcast stations are so few or of such unequal desirability (in terms of coverage, power, frequency, or other related matters) that competition would be substantially restrained by such licensing. (The word "control" as used herein is not limited to majority stock ownership, but includes actual working control in whatever manner exercised.)

§ 3.237 Dual network operation. No license shall be issued to an FM broadcast station affiliated with a network organization which maintains more than one network of FM broadcast stations: Provided, That this section shall not be applicable if such networks are not operated simultaneously, or if there is no substantial overlap in the territory served by the group of stations comprising each such network.

§ 3.238 Control by networks of station rates. No license shall be granted to an FM broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, fixing or altering its rates for the sale of broadcast time for other than the network's programs.

§ 3.239 Use of common antenna site. No FM broadcast station license or renewal of FM broadcast station license will be granted to any person who owns, leases, or controls a particular site which is peculiarly suitable for FM broadcasting in a particular area and (a) which is not available for use by other FM broadcast station licensees; and (b) no other comparable site is available in the area; and (c) where the exclusive use of such site by the applicant or licensee would unduly limit the number of FM broadcast stations that can be authorized in a particular area or would unduly restrict competition among FM broadcast stations.

§ 3.240 Multiple ownership. No license for an FM broadcast station shall be granted to any party (including all parties under common control) if:

(a) Such party directly or indirectly owns, operates, or controls another FM broadcast station which serves substantially the same service area, or

(b) Such party, or any stockholder, officer or director of such party, directly or indirectly owns, operates, controls, or has any interest in, or is an officer or director of any other FM broadcast station if the grant of such license would result in a concentration of control of FM broadcasting in a manner inconsistent with public interest, convenience, or necessity. In determining whether there is such a concentration of control, consideration will be given to the facts of each case with particular reference to such factors as the size, extent and location of areas served, the number of people served, classes of stations involved, and the extent of other competitive service to the areas in question. The Commission, however, will in any event consider that there would be such a concentration of control contrary to the public interest, convenience or necessity for any party or any of its stockholders. officers or directors to have a direct or indirect interest in, or be stockholders, officers, or directors of, more than seven FM broadcast stations.

Note 1. The word "control" as used herein is not limited to majority stock ownership, but includes actual working control in whatever manner exercised.

Note 2: In applying the foregoing provisions to the stockholders of a corporation which has more than 50 voting stockholders, only those stockholders need be considered who are officers or directors or who directly or indirectly own 1 percent or more of the outstanding voting stock.

§ 3.241 Special rules relating to contracts providing for reservation of time upon sale of a station. (a) No license. renewal of license, assignment of license, or transfer of control of a corporate licensee shall be granted or authorized to a FM broadcast station which has a contract, arrangement or understanding, express or implied, pursuant to which. as consideration or partial consideration for the assignment of license or transfer of control, the assignor of a station license or the transferor of stock, where transfer of a corporate licensee is involved, or the nominee of such assignor or transferor retains any right of reversion of the license or any right to the reassignment of the license in the future. or reserves the right to use the facilities of the station for any period whatsoever.

(b) In the case of assignment of 4icense or transfer of control of a corporate licensee approved by the Commission before the effective date of this section, February 15, 1949, involving a contract, arrangement or understanding of the type covered by paragraph (a) of this section and the existence and terms of which were fully disclosed to the Commission at the time of execution, the Commission will give consideration to the issuance of a license despite the existence of such contract, arrangement or understanding, if the parties thereto modify such contract within 6 months

from the effective date of this section. Such modification will be considered on the facts of each case but no such modification will be approved unless the modified contract contains at least the following provisions:

(1) A maximum limitation of the time subject to reservation so that no more than 12 hours per week shall be subject to reservation, of which no more than 4 hours shall be on any given day.

(2) A clause providing that the licensee reserves the right to reject or refuse programs which he reasonably believes to be unsatisfactory or unsuitable or for which, in his opinion, a program of outstanding local or national importance should be substituted, but provision may be made for the substitution of other radio time for programs so rejected or for the payment at the station card rate for the time made unavailable.

(3) A prohibition against the resale or reassignment of any of the broadcast time reserved by such modified contract.

(4) An express negation of any right with respect to reversion or reassignment of license.

(5) An express provision setting forth a definite expiration date of the contract arrangement or understanding. Such expiration date shall not extend beyond February 15, 1964, and shall in no event extend beyond the expiration date originally provided for in any such contract, agreement or understanding, in the event that such expiration date is a date prior to February 15, 1964.

(6) An express provision giving to the licensee the right to terminate the contract, arrangement or understanding for substantial cause, including, but not limited to, the assignment of license or the transfer of control of a corporate licensee, consistent disagreement over programs between the parties, or the acquisition of a network affiliation by the licensee, upon the payment of a lump sum or periodic payments, and providing that the amount initially fixed shall thereafter decrease as the amount of time reserved is decreased by performance of the contract. Any such payment should not be so unduly large as to constitute in practice an effective deterrent to the licensee exercising the right. In determining whether the amount is unduly large, the Commission will consider the amount by which consideration in return for the transfer of the station was decreased by reason of the reservation of time or the present value of the radio time still reserved and unused as of the date of the exercise of the right of termination.

§ 3.250 Acceptability of broadcast transmitters for licensing. (a) In order to facilitate the filing of, and action on applications for station authorizations, transmitters will be accepted for licensing by the Commission under one of the following conditions:

(1) A transmitter may be type-accepted upon the request of any manufacturer of transmitters built in quantity by following the type acceptance procedure set forth in Part 2 of this chapter, provided that the data and information submitted indicates that the transmitter

meets the requirements of § 3.317. If accepted, such transmitter will be included on the Commission's "Radio Equipment List, Part B, Aural Broadcast E q u i p m e n t" Applicants specifying transmitters included on such a list need not submit detailed descriptions and diagrams where the correct type number is specified, provided that the equipment proposed is identical with that accepted. Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field offices.

(2) An application specifying a transmitter not included on the Radio Equipment List, Part B. may be accepted upon the request of a prospective licensee submitting with the application for construction permit a complete description of the transmitter, including the circuit diagram, listing of all tubes used, function of each, multiplication in each stage, plate current and voltage applied to each tube, a description of the oscillator circuit together with any devices installed for the purpose of frequency stabilization and the means of varying output powerto compensate for power supply voltage variations. However, if this data has been filed with the Commission by a manufacturer in connection with a request for type acceptance, it need not be submitted with the application for construction permit but may be referred to as "on file" Measurement data for type acceptance made in accordance with subparagraph (1) of this paragraph shall be submitted with the license applica-

(3) A transmitter shown on an instrument of authorization by manufacturer and type number, or as a composite, and which was in use prior to June 30, 1955 may continue to be used by the licensee, his successors or assignees, provided such transmitter continues to comply with the rules and regulations.

(b) Additional rules with respect to withdrawal of type-acceptance, modification of type-accepted equipment and limitations on the findings upon which type acceptance is based are set forth in Part 2 of this chapter.

§ 3.251 Transmitter power The standard power rating and operating power range of transmitters shall be in accordance with § 3.317.

§ 3.252 Frequency monitor (a) The licensee of each station shall have in operation, either at the transmitter or at the place where the transmitter is controlled, a frequency monitor of a type approved by the Commission which shall be independent of the frequency control of the transmitter.

Note: Approved frequency monitors are included on the Commission's "Radio Equipment List, Part B, Aural Broadcast Equipment" Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field offices.

(b) In the event that the frequency monitor becomes defective the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided*, That:

(1) Appropriate entries shall be made in the operating log of the station showing the date and time the monitor was removed from and restored to service.

(2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the monitor is found to be defective and immediately after the repaired or replacement monitor has been installed and is functioning properly.

(3) The frequency of the station shall be compared with an external frequency source of known accuracy at sufficiently frequent intervals to insure that the frequency is maintained within the tolerance prescribed in § 3.269. An entry shall be made in the station log as to

the method used and the results thereof. (c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the above allowed period, informal request in accordance with § 1.332 (d) of this chapter may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

§ 3.253 Modulation monitor (a) The licensee of each station shall have in operation, either at the transmitter or at the place where the transmitter is controlled, a modulation monitor of the type approved by the Commission.

Note. Approved modulation monitors are included on the Commission's "Radio Equipment List, Part B, Aural Broadcast Equipment." Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field

(b) In the event that the modulation monitor becomes defective the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: Provided, That:

(1) Appropriate entries shall be made in the operating log of the station showing the date and time the monitor was removed from and restored to service.

(2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the monitor is found to be defective and immediately after the repaired or replacement monitor has been installed and is functioning properly.

(3) During the period when the station is operated without the modulation monitor the licensee shall provide other suitable means for insuring that the modulation is maintained within the tolerance prescribed in § 3.268.

(c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within, the above allowed period, informal request in accordance with § 1.332 (d) of this chapter may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

§ 3.254 Required transmitter performance. (a) The construction, installation, operation and performance of

the FM broadcast transmitting system shall be in accordance with § 3.317.

(b) The licensee of each FM broadcast station shall make the following equipment performance measurements at least at yearly intervals. (One such set of measurements shall be made during the four-month period preceding the date of filing application for renewal of station license.)

(1) Audio frequency response from 50 to 15,000 cycles for approximately 25, 50 and 100 percent modulation. Measurements shall be made on at least the following audio frequencies: 50, 100, 400, 1000, 5000, 10,000 and 15,000 cycles. The 1000, 5000, 10,000 and 15,000 cycles. frequency response measurements should normally be made without deemphasis; however, standard 75 microsecond deemphasis may be employed in the measuring equipment or system provided the accuracy of the deemphasis circuit is sufficient to insure that the measured response is within the prescribed limits.

(2) Audio frequency harmonic distortion for 25, 50 and 100 percent modulation for the fundamental frequencies of 50, 100, 400, 1000, and 5000 cycles. Audio frequency harmonics for 100 percent modulation for fundamental frequencies of 10,000 and 15,000 cycles. Measurements shall normally include harmonics to 30,000 cycles. The distortion measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.

(3) Output noise level (frequency modulation) in the band of 50 to 15,000 cycles in decibels below the audio frequency level representing a frequency swing of 75 kilocycles. The noise measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.

(4) Output noise level (amplitude modulation) in the band of 50 to 15,000 cycles in decibels below the level representing 100 percent amplitude modulation. The noise measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system. All measurements shall be made with the equipment adjusted for normal program operation and shall include all circuits between the main studio microphone terminals and the antenna output, including telephone lines, preemphasis circuits and any equalizers employed except for microphones, and without compression if a compression amplifier is installed.

(c) The data required by paragraph (b) of this section together with a description of instruments and procedure signed by the engineer making the measurements shall be kept on file at the transmitter and retained for a period of two years and shall be made available during that time upon request to any duly authorized representative of the Federal Communications Commission.

§ 3.255 Auxiliary transmitter. Upon showing that a need exists for the use of an auxiliary transmitter in addition to the regular transmitter of an FM broadcast station, a license therefor may be issued: Provided, That:

(a) An auxiliary transmitter may be installed either at the same location as

the main transmitter or at another location.

(b) A licensed operator shall be in control whenever an auxiliary transmitter is placed in operation.

(c) The auxiliary transmitter shall be maintained so that it may be put into immediate operation at any time for the

following purposes:

(1) The transmission of the regular programs upon the failure of the main transmitter.

(2) The transmission of regular programs during maintenance or modification work on the main transmitter, necessitating discontinuance of its operation for a period not to exceed 5 days. (This includes the equipment changes which may be made without authority as set forth elsewhere in the rules and regulations or as authorized by the Commission by letter or by construction permit. Where such operation is required for periods in excess of 5 days, request therefor shall be in accordance with § 1.324 of this chapter.)

(3) Upon request by a duly authorized representative of the Commission.

- (d) The auxiliary transmitter shall be tested at least once each week to determine that it is in proper operating condition and that it is adjusted to the proper frequency, except that in the case of operation in accordance with paragraph (c) of this section during any week, the test in that week may be omitted provided the operation under paragraph (c) of this section is satisfactory. Tests shall be conducted only between midnight and 6 a. m., local standard time. A record shall be kept of the time and result of each test. Such records shall be retained for a period of two years.
- (e) The auxiliary transmitter shall be equipped with satisfactory control equipment which will enable the maintenance of the frequency emitted by the station within the limits prescribed by the regulations in this part.
- (f) The operating power of an auxiliary transmitter may be less than the authorized power of the main transmitter, but in no event shall it be greater than such power.
- § 3.256 Alternate main transmitters. The licensee of an FM broadcast station may be licensed for alternate main transmitters provided that a technical need for such alternate transmitters is shown (such as licensees maintaining 24-hour schedule and needing alternate operation for maintenance, or where developmental work requires alternate operation) and that the following conditions are met:
- (a) Both transmitters are located at the same place.
- (b) Both transmitters shall have the same power rating.
- (c) Both transmitters shall meet the construction, installation, operation, and performance requirements of § 3.317.
- § 3.257 Changes in equipment and antenna system. Licensees of FM broadcast stations shall observe the following provisions with regard to changes in equipment and antenna system:

- (a) No changes in equipment shall be made:
- (1) That would result in the emission of signals outside of the authorized channel.
- (2) That would result in the external performance of the transmitter being in disagreement with that prescribed in § 3.317.
- (b) Specific authority, upon filing formal-application (FCC Form 301) therefor, is required for a change in service area or for any of the following changes:
- (1) Changes involving an increase or decrease in the power rating of the transmitter.
- (2) A replacement of the transmitter as a whole.
- (3) Change in the location of the transmitting antenna.
- (4) Change in antenna system, including transmission line.
- (5) Change in location of main studio, if it is proposed to move the main studio to a different city from that specified in the license.
- (6) Change in the power delivered to the antenna.
- (7) Change in frequency control and/or modulation system.
- (8) Change in the authorized transmitter remote control point(s)
- (c) Other changes, except as above provided for in this section or in the Technical Standards of this subpart may be made at any time without the authority of the Commission: Provided, That the Commission shall be promptly notified thereof and such changes shall be shown in the next application for renewal of license.
- § 3.258 Indicating instruments. (a) Each FM broadcast station shall be equipped with indicating instruments, which conform with the specifications set forth in § 3.320, for measuring the direct plate voltage and current of the last radio stage and the transmission line radio frequency current, voltage or power.
- (b) In the event that any one of these indicating instruments becomes defective when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days: *Provided*, That:
- (1) Appropriate entries shall be made in the operating log of the station showing the date and time the meter was removed from and restored to service.
- (2) The Engineer in Charge of the radio district in which the station is located shall be notified immediately after the instrument is found to be defective and immediately after the repaired or replaced instrument has been installed and functioning properly.
- (3) If the defective instrument is a plate voltmeter or plate ammeter in the last radio stage, the operating power shall be maintained by means of the radio frequency transmission line meter.
- (c) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, informal request may be filed in accordance with § 1.332 (d) of this chapter with the Engineer in Charge

of the radio district in which the station is located-for such additional time as may be required to complete repairs of the defective instrument.

TECHNICAL OPERATION

§ 3.261 Time of operation. All FM broadcast stations will be licensed for unlimited time operation. A minimum of 36 hours per week during the hours of 6:00 a. m. to midnight, consisting of not less than 5 hours in any one day, must be devoted to the FM broadcast operation; time devoted to operations conducted pursuant to a Subsidiary Communications Authorization §§ 3.293-3.295) shall not be included in meeting this 36-hour broadcast requirement. In an emergency when, due to causes beyond the control of a licensee, it becomes impossible to continue operation, the station may cease operation for a period not to exceed 10 days, provided that the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified in writing immediately after the emergency develops.

§ 3.262 Experimental operation. The period between 1:00 a.m., and 6:00 a.m., local standard time, may be used for experimental purposes in testing and maintaining apparatus by the licensee of any FM broadcast station on its assigned frequency and not in excess of its authorized power, without specific authorization by the Commission.

§ 3.263 Station inspection. The licensee of any FM broadcast station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

§ 3.264 Station and operator licenses; posting of. (a) The station license and any other instrument of station authorization shall be posted in a conspicuous place and in such manner that all terms are visible, at the place the licensee considers to be the principal control point of the transmitter. At all other control points listed on the station authorization, a photocopy of the station license and other instruments of station authorization shall be posted.

(b) The original operator license, or FCC Form 759, of each station operator shall be posted at the place where he is on duty as an operator.

§ 3.265 Operator requirements. (a) One or more radio operators holding a valid radiotelephone first-class operator license, except as provided in this section, shall be in actual charge of the transmitting apparatus and shall be on duty either at the transmitter location or remote control point.

(b) A station which is authorized with transmitter power output of 10 kilowatts or less may be operated by persons holding commercial radio operator license of any class, except an aircraft radiotelephone operator authorization or a temporary limited radiotelegraph second-class operator license, when the equipment is so designed that the stability of the frequency is maintained by the transmitter itself within the limits of tolerance specified, and none of the operations, except those specified in sub-

- paragraphs (1) (2) and (3) of this paragraph, necessary to be performed during the course of normal operation may cause off-frequency operation or result in any unauthorized radiation. Adjustments of transmitting equipment by such operators, except when under the mmediate supervision of a radiotelephone first-class operator shall be limited to the following:
- (1) Those necessary to commence or terminate transmitter emissions as a routine matter.
- (2) Those external adjustments that may be required as a result of variations of primary power supply.
- (3) Those external adjustments which may be necessary to insure modulation within the limits required.
- Should the transmitting apparatus be observed to be operating in a manner inconsistent with the station's instrument of authorization and none of the above adjustments are effective in bringing it into proper operation, a person holding other than a radiotelephone first-class operator license and not acting under the immediate supervision of a radiotelephone first-class operator, shall be required to terminate the station's emissions.
- (c) The licensee of a station which is operated by one or more operators holding other than a radiotelephone firstclass operator license shall have one or more operators holding a radiotelephone first-class operator license in regular full-time employment at the station whose primary duties shall be to effect and insure the proper functioning of the transmitting equipment. In the event that the licensee also operates a standard broadcast station in the same community, a regular full-time radiotelephone first-class operator or operators employed in connection with the FM broadcast station may concurrently be employed to satisfy the requirements of § 3.93 (c) Provided, That the duties of such operator or operators concerning the standard broadcast transmitting equipment shall in nowise interfere with the proper performance of his duties with respect to the FM broadcast transmitter.
- (d) The licensed operator on duty and in charge of an FM broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another radio station or stations in accordance with the class of operator's license which he holds and the rules and regulations governing such other stations: Provided, however That such duties shall in nowise interfere with the proper operation of the FM broadcast transmitter.
- § 3.266 Facsimile broadcasting and multiplex transmission. (a) FM broadcast stations may transmit simplex facsimile in accordance with transmission standards set forth in § 3.318 during periods not devoted to FM aural broadcasting. Such transmissions may not exceed one hour during the period between 7 a. m. and midnight (no limit for the hours between midnight and 7 a. m.) and may not be counted toward the minimum operation required by § 3.261. The Commission shall be notified by the licensee

of the FM broadcast station of its intent to transmit such facsimile.

(b) FM broadcast stations may, upon securing authorization from the Commission, transmit multiplex facsimile in accordance with transmission standards set forth in § 3.318: Provided, That the transmission of such facsimile does not reduce the quality of aural programs simultaneously transmitted by the licensee below that required by the Technical Standards of this subpart and that no degradation of such aural programs will result from such facsimile transmissions when received on FM receivers not equipped with filter or other additional equipment.

§ 3.267 Operating power determination and maintenance of. (a) The operating power of each station shall be determined by the indirect method. This is the product of the plate voltage (E_p) and the plate current (I_p) of the last radio stage, and an efficiency factor, F_i that is:

Operating power= $E_p \times I_p \times F$

The efficiency factor, F shall be established by the transmitter manufacturer for each type of transmitter for which Commission approval is requested, and shall be specified in the instruction books supplied to the customer with each transmitter. In the case of composite equipment the factor, F shall be furnished to the Commission along with a statement of the basis used in determining such factor.

(b) The operating power of each station shall be maintained as near as practicable to the authorized operating power, and shall not exceed the limits of 5 percent above and 10 percent below the authorized power, except that in an emergency when it becomes impossible to operate with the authorized power, the station may be operated with reduced power for a period not to exceed 10 days, provided the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified immediately after the emergency develops, and also upon the resumption of normal operating power.

§ 3.268 Modulation. The percentage of modulation of FM broadcast stations shall be maintained as high as possible consistent with good quality of transmission and good broadcast practice and in no case less than 85 percent nor more than 100 percent on peaks of frequent recurrence during any selection which normally is transmitted at the highest level of the program under consideration.

§ 3.269 Frequency tolerance. The center frequency of each FM broadcast station shall be maintained within 2000 cycles of the assigned center frequency.

§ 3.270 Antenna structure, marking and lighting. Where an antenna structure(s) is required to be painted or lighted see § 17.29, Inspection of tower lights and associated control equipment; § 17.39, Cleaning and repainting; § 17.40 Time when lights shall be exhibited; § 17.41 Spare lamps; and § 17.42, Lighting equipment; of Part 17 of this chapter (Construction, Marking and Lighting of Antenna Structures)

§ 3.271 Discontinuance of operation. The licensee of each station shall notify the Commission in Washington, D. C., and the Engineer in Charge of the radio district where such station is located of permanent discontinuance of operation at least two days before operation is discontinued. The licensee shall, in addition, immediately forward the station license and other instruments of authorization to the Washington, D. C., office of the Commission for cancellation.

§ 3.272 Field intensity measurements. The Commission may require field intensity measurements in connection with applications and in other cases where such measurements are found to be necessary. For example, any application which asserts that interference predicted under the Technical Standards of this subpart would not be realized may require supplementary data including appropriate field intensity measurements. Furthermore, in order that FM broadcast station coverage data may be accumulated it is desirable that existing FM broadcast stations make such measurements where feasible and file the data with the Commission.

§ 3.273 Emergency antenna. In the event it becomes impossible to operate with the regularly authorized antenna, the station may, without further authority, be operated with an emergency antenna for a period of 10 days or less pending necessary repairs: Provided, That the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified in writing immediately upon the beginning of such operation and upon the resumption of normal operation.

§ 3.274 Remote control operation. A station which is authorized with transmitter power output of 10 kilowatts or less may, upon prior authorization from the Commission, be operated by remote control at the point(s) which shall be specified in the station license. An application for authorization to operate by remote control may be made as a part of an application for construction permit or license or modification thereof by specifying the proposed remote control point(s). Operation by remote control shall be subject to the following conditions:

(a) The equipment at the operating and transmitting positions shall be so installed and protected that it is not accessible to or capable of operation by persons other than those duly authorized by the licensee.

(b) The control circuits from the operating position to the transmitter shall provide positive on and off control and shall be such that open circuits, short circuits, grounds or other line faults will not actuate the transmitter and any fault causing loss of such control will automatically place the transmitter in an inoperative condition.

(c) Control and monitoring equipment shall be installed so as to allow the licensed operator either at the remote control point or at the transmitter to perform all of the functions in a manner required by the Commission's rules and Standards.

OTHER OPERATING REQUIREMENTS

§ 3.281 Logs. The licensee or permittee of each FM broadcast station shall maintain separate program and operating logs for such station: Provided, however, If the same licensee or, permittee operates an FM broadcast station and a standard broadcast station and simultaneously broadcasts the same programs over the facilities of both such stations, one program log may be mantained for both stations for such periods as both stations simultaneously broadcast the same programs. Such licensee or permittee shall require entries to be made as follows:

(a) In the program log:

(1) An entry of the time each station identification announcement (call letters

and location) is made.

(2) An entry briefly describing each program broadcast, such as "music." "drama," "speech," etc., together with the name or title thereof and the sponsor's name, with the time of the beginning and ending of the complete program. If a mechanical record is used, the entry shall show the exact nature thereof, such as "record," "transcription," etc., and the time it is announced as a mechanical reproduction. If a speech is made by a political candidate, the name and political affiliations of such speaker shall be entered.

(3) An entry showing that each sponsored program broadcast has been announced as sponsored, paid for, or furbland has the managed paid for, or furbland has the managed paid for, or furbland has the managed paid for the form of the for

nished by the sponsor.

(4) An entry showing, for each program of network origin, the name of the network originating the program.

(b) In the operating log:

(1) An entry of the time the station begins to supply power to the antenna, and the time is stops.

(2) An entry of the time the program begins and ends.

(3) An entry of each interruption to the carrier wave, its cause, and duration.

(4) An entry of the following each 30 minutes:

(i) Operating constants of last radio stage (total plate current and plate voltage).

(ii) RF transmission line meter reading.

(iii) Frequency monitor reading.

(5) Log of experimental operation during experimental period (if regular operation is maintained during this period, the above logs shall be kept)

(i) A log must be kept of all operation during the experimental period. If the entries required above are not applicable thereto, then the entries shall be made so as to fully describe the operation.

(c) Where an antenna structure(s) is required to be illuminated see § 17.38, Recording of tower light inspections, in the station record, of Part 17 of this chapter, (Construction, Marking and Lighting of Antenna Structures).

§ 3.282 Logs; retention of. Logs of FM broadcast stations shall be retained by the licensee or permittee for a period of two years: Provided, however That logs involving communications incident to a disaster or which include communications incident to or involved in an investigation by the Commission and

concerning which the licensee or permittee has been notified, shall be retained by the licensee or permittee until he is specifically authorized in writing by the Commission to destroy them: Provided, further That logs incident to or involved in any claim or complaint of which the licensee or permittee has notice shall be retained by the licensee or permittee until such claim or complaint has been fully satisfied or until the same has been barred by statute limiting the time for the filing of suits upon such claims.

§ 3.283 Logs; by whom kept. Each log shall be kept by the person or persons competent to do so, having actual knowledge of the facts required, who shall signthe log when starting duty and again when going off duty. The logs shall be made available upon request by an authorized representative of the Commission.

§ 3.284 Log form. The log shall be kept in an orderly manner, in suitable form, and in such detail that the data required for the particular class of station concerned are readily available. Key letters or abbreviations may be used if proper meaning or explanation is contained elsewhere in the log.

§ 3.285 Correction of logs. No log or portion thereof shall be erased, obliterated, or willfully destroyed within the period of retention provided by the rules. Any necessary correction may be made only by the person originating the entry who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction.

§ 3.286 Rough logs. Rough logs may be transcribed into condensed form, but in such case the original log or memoranda and all portions thereof shall be preserved and made a part of the complete log.

§ 3.287 Station identification. (a) A licensee of an FM broadcast station shall make separate station identification announcement (call letters and location) for such station: Provided, however That, if the same licensee operates an FM broadcast station and a standard broadcast station and simultaneously broadcasts the same programs over the facilities of both such stations, station identification announcements may be made jointly for both stations for periods of such simultaneous operation. If the call letters of the FM station do not clearly reveal that it is an FM station. the joint announcement shall state that one of the stations is an FM station. Station identification announcement shall be made at the beginning and ending of each time of operation and during operation (1) on the hour and (2) either on the half hour or at the quarter hour following the hour and at the quarter hour preceding the next hour: Provided,

(b) Such identification announcement need not be made on the hour when to make such announcement would interrupt a single consecutive speech, play religious service, symphony concert, or operatic production of longer duration than 30 minutes. In such cases the identification announcement shall be

made at the beginning of the program, at the first interruption of the entertainment continuity, and at the conclusion of the program.

(c) Such identification announcement need not be made on the half hour or quarter hours when to make such announcement would interrupt a single consecutive speech, play, religious service, symphony concert, or operatic production. In such cases an identification announcement shall be made at the first interruption of the entertainment continuity and at the conclusion of the program: Provided, That an announcement within 5 minutes of the times specified in paragraph (a) (2) of this section will satisfy the requirements of identification announcements.

(d) In the case of variety show programs, baseball game programs or similar programs of longer duration than 30 minutes, the identification announcement shall be made within 5 minutes of the hour and of the times specified in paragraph (a) (2) of this section.

(e) In the case of all other programs, the identification announcement shall be made within 2 minutes of the hour and of the times specified in paragraph (a) (2) of this section.

(f) In making the identification announcement the call letters shall be given only on the channel of the station identified thereby except as otherwise provided herein.

§ 3.288 Mechanical records. Each program broadcast which consists in whole or in part of one or more mechanical reproductions shall be announced in the manner and to the extent set out in paragraphs (a) to (e) of this section.

(a) Each such program of longer duration than 30 minutes, consisting in whole or in part of one or more mechanical reproductions, shall be identified by appropriate announcement at the beginning of the program, at each 30-minute interval and at the conclusion of the program: Provided, however. That the identifying announcement at each 30-minute interval is not required in case of a mechanical reproduction consisting of a continuous uninterrupted speech, play, religious service, symphony concert, or operatic production of longer than 30 minutes.

(b) Each such program of a longer duration than 5 minutes and not in excess of 30 minutes, consisting in whole or in part of one or more mechanical reproductions, shall be identified by an appropriate announcement at the beginning and end of the program.

(c) Each such program of duration of 5 minutes or less, consisting in whole or in part of mechanical reproductions, shall be identified by appropriate announcement immediately preceding the use thereof: *Provided, however* That each such program of one minute or less need not be announced as such.

(d) In case a mechanical reproduction is used for background music, sound effects, station identification, program identification (theme music of short duration) or identification of the sponsorship of the program proper, no announcement of the mechanical reproduction is required.

(e) The exact form of identifying announcement is not prescribed, but the language shall be clear and in terms commonly used and understood. A licensee shall not attempt affirmatively to create the impression that any program being broadcast by mechanical reproduction consists of live talent.

§ 3.289 Sponsored programs; announcement of. (a) In the case of each program for the broadcasting of which money, services, or other valuable consideration is either directly or indirectly paid or promised to, or charged or received by, any radio broadcast station, the station broadcasting such program shall make, or cause to be made, an appropriate announcement that the program is sponsored, paid for, or furnished,

either in whole or in part.

(b) In the case of any political program or any program involving the discussion of public controversial issues for which any records, transcriptions, talent, scripts, or other material or services of any kind are furnished, either directly or indirectly, to a station as an inducement to the broadcasting of such program, an announcement shall be made both at the beginning and conclusion of such program on which such material or services are used that such records, transcriptions, talent, scripts, or other material or services have been furnished to such station in connection with the broadcasting of such program: Provided, however That only one such announcement need be made in the case of any such program of 5 minutes' duration or less, which announcement may be made either at the beginning or conclusion of the program.

(c) The announcement required by this section shall fully and fairly disclose the true identity of the person or persons by whom or in whose behalf such payment is made or promised, or from whom or in whose behalf such services or other valuable consideration is received, or by whom the material or services referred to in paragraph (b) of this section are furnished. Where an agent or other person contracts or otherwise makes arrangements with a station on behalf of another, and such fact is known to the station, the announcement shall disclose the identity of the person or persons in whose behalf such agent is acting instead of the name of such agent.

(d) In the case of any program, other than a program advertising commercial products or services, which is sponsored, paid for, or furnished, either in whole or in part, or for which material or services referred to in paragraph (b) of this section are furnished, by a corporation, committee, association or other unincorporated group, the announcement required by this section, shall disclose the name of such corporation, committee, association or other unincorporated group. In each such case the station shall require that a list of the chief executive officers or members of the executive committee or of the board of directors of the corporation, committee, association or other unincorporated group shall be made available for public inspection at one of the radio stations carrying the program.

(e) In the case of programs advertising commercial products or services, an announcement stating the sponsor's corporate or trade name or the name of the sponsor's product, shall be deemed sufficient for the purposes of this section and only one such announcement need be made at any time during the course of the program.

§ 3.290 Broadcasts by candidates for public office—(a) Definitions. A "legally qualified candidate" means any person who has publicly announced that he is a candidate for nomination by a convention of a political party or for nomination or election in a primary, special, or general election, municipal, county, state or national, and who meets the qualifications prescribed by the applicable laws to hold the office for which he is a candidate, so that he may be voted for by the electorate directly or by means of delegates or electors, and who—

(1) Has qualified for a place on the ballot or

(2) Is eligible under the applicable law to be voted for by sticker, by writing in his name on the ballot, or other method, and (i) has been duly nominated by a political party which is commonly known and regarded as such, or (ii) makes a substantial showing that he is a bona fide candidate for nomination or office, as the case may be.

(b) General requirements. No station licensee is required to permit the use of its facilities by any legally qualified candidate for public office, but if any licensee shall permit any such candidate to use its facilities, it shall afford equal opportunities to all other such candidates for that office to use such facilities: Provided, That such licensee shall have no power of censorship over the material broadcast by any such candidate.

(c) Rates and practices. (1) The rates, if any, charged all such candidates for the same office shall be uniform and shall not be rebated by any means direct or indirect. A candidate shall, in each case, be charged no more than the rate the station would charge if the candidate were a commercial advertiser whose advertising was directed to promoting its business within the same area as that encompassed by the particular office for which such person is a candidate. All discount privileges otherwise offered by a station to commercial advertisers shall be available upon equal terms to all candidates for public office.

(2) In making time available to candidates for public office no licensee shall make any discrimination between candidates in charges, practices, regulations, facilities, or services for or in connection with the service rendered pursuant to this part, or make or give any preference to any candidate for public office or subject any such candidate to any prejudice or disadvantage; nor shall any licensee make any contract or other agreement which shall have the effect of permitting any legally qualified candidate for any public office to broadcast to the exclusion of other legally qualified candidates for the same public office.

(d) Inspection of records. Every licensee shall keep and permit public in-

spection of a complete record of all requests for broadcast time made by or on behalf of candidates for public office, together with an appropriate notation showing the disposition made by the licensee of such requests, and the charges made, if any, if request is granted. Such records shall be retained for a period of two years.

§ 3.291 Rebroadcast. (a) The term "rebroadcast" means reception by radio of the program of a radio station, and the simultaneous or subsequent retransmission of such program by a broadcast station.

Note 1. As used in this section, program includes any complete program or part thereof.

Note 2: In case a program is transmitted from its point of origin to a broadcast station entirely by telephone facilities in which a section of such transmission is by radio, the broadcasting of this program is not considered a rebroadcast.

(b) The licensee of an FM broadcast station may, without further authority of the Commission, rebroadcast the program of a United States standard, FM or noncommercial educational FM broadcast station, provided the Commission is notified of the call letters of each station rebroadcast and the licensee certifies that express authority has been received from the licensee of the station originating the program.

Note: The notice and certification of consent shall be given within 3 days of any single rebroadcast, but in case of the regular practice of rebroadcasting certain programs of a standard or FM broadcast station coveral times during a license period, notice and certification of consent shall be given for the ensuing license period with the application for renewal of license, or at the beginning of such rebroadcast practice if begun during a license period.

(c) (1) The licensee of an FM broadcast station located within a State or the District of Columbia may, without further authority of the Commission, rebroadcast on a noncommercial basis a noncommercial program of a United States international broadcast station.

(2) The licensee of an FM broadcast station located in any territory or insular possession of the United States may, without further authority of the Commission, rebroadcast any program of a United States international broadcast station.

(3) In the case of any rebroadcast under the provisions of this paragraph, the Commission shall be notified of the call letters of each station whose program is rebroadcast and the licensee shall certify that express authority has been received from the licensee of the station originating the program.

(d) No licensee of an FM broadcast station shall rebroadcast the program of any United States radio station not designated in paragraph (b) or (c) of this section without written authority having first been obtained from the Commission upon application (informal) accompanied by written consent or certification of consent of the licensee of the station originating the program.

Note 1: The broadcasting of a program relayed by a remote pickup broadcast station

or an ST broadcast station is not considered a rebroadcast.

Now 2: By Order No. 82, dated and effective June 24, 1941, until further order of the Commission, § 3.231 (d) is suspended only incofar as it requires prior written authority of the Commission for the rebroadcasting of programs originated for that express purpose by United States Government radio stations.

§ 3.292 Lotteries. (a) An application for construction permit, license, renewal of license, or any other authorization for the operation of a broadcast station, will not be granted where the applicant proposes to follow or continue to follow a policy or practice of broadcasting or permitting "the broadcasting of, any advertisement of or information concerning any lottery, gift enterprise, or similar scheme, offering prizes dependent in whole or in part upon lot or chance, or any list of the prizes drawn or awarded by means of any such lottery, gift enterprise, or scheme, whether said list contains any part or all of such prizes." (See 18 U. S. C. 1304.)

(b) The determination whether a particular program comes within the provisions of paragraph (a) of this section depends on the facts of each case. However, the Commission will in any event consider that a program comes within the provisions of paragraph (a) of this section if in connection with such program a prize consisting of money or thing of value is awarded to any person whose selection is dependent in whole or in part upon lot or chance, if as a condition of winning or competing for such prize, such winner or winners are required to furnish any money or thing of value or are required to have in their possession any product sold, manufactured, furnished or distributed by a sponsor of a program broadcast on the station in question.

§ 3.293 Subsidiary communications authorization. An FM broadcast licensee or permittee may apply for a Subsidi-Communications Authorization (SCA) to engage in a limited type of non-broadcast service. These services are restricted to those involving programming consisting of news, music, time, weather, and other similar programming categories. (The functional music services whereby FM stations undertake to supply programs of a predominantly musical nature to commercial establishments is an example of such an SCA service.) FCC Form 318-Application for Subsidiary Communications Authorization shall be submitted; the applicant for the SCA shall there specify the particular nature or purposes of the SCA operation or operations sought, and whether it will be conducted on a simplex or multiplex basis, or both. If on a multiplex basis, it may be carried on without restriction as to time; if on a simplex basis, the SCA operation shall be conducted during those times not devoted to the 36 hours required under § 3.261 for FM broadcast operation. (Subsidiary Communications Authorizations on a simplex basis will be assued to expire July 1, 1956.)

§ 3.294 Nature of the SCA. (a) The SCA is of a subsidiary or secondary nature and shall not exist apart from the

FM license or permit. No transfer or assignment of it shall be made separate from the FM broadcast license, and failure to transfer the SCA (through application on FCC Form 318) with the FM license or permit renders the SCA void. The licensee or permittee must seek renewal of the SCA (on FCC Form 318) at the same time it applies for its renewal of FM license or permit; failure to renew the latter automatically terminates the SCA.

(b) The grant or renewal of an FM license or permit shall not be furthered or promoted by the proposed or past operation under an SCA, the licensee must establish that his broadcast operation is in the public interest wholly apart from the SCA activities. (Violation of rules applicable to the SCA operation would, of course, reflect on the licensee's qualifications to hold, its broadcast license or permit.)

Operation under the SCA. (a) The SCA holder must restrict its operation to the uses or purposes granted by the Commission in acting upon his application; prior permission to engage in any additional or new activity must be obtained from the Commission.

(b) Supersonic tones or other similar devices may be employed with respect tomaterial transmitted during the SCA operation in order to promote or maintain its commercial marketability, with the station using appropriate actuating devices with the subscribers' receivers.

- (c) In all arrangements entered into under the SCA with outside parties, the licensee or permittee must pass on all material to be transmitted over the station's facilities, with the right to reject any material which it deems inappropriate or undesirable; when the SCA operation is conducted on a simplex basis, the licensee must be able, through appropriate contractual arrangement, to substitute a broadcast program at any time it deems it in the public interest to do so.
- (d) The requirements of §§ 3.290 and 3.291 are equally applicable when the FM licensee or permittee is engaged in operations pursuant to the SCA.
- (e) The requirements of § 3.287 with respect to station identification announcements must be met by identification on the main carrier when a station is engaged in SCA operations. The licensee may prevent their reception on subscribers' receivers through the use of supersonic tones capable of deactivating. these specialized receivers.
- (f) The requirements of §§ 3.288 and 3.289 are applicable to the SCA operation when the latter is conducted on a simplex basis; provided that the station may employ supersonic tones or other devices to prevent the reception of such announcements over subscribers' receivers. The requirement of § 3.289 shall be deemed to have been met by the SCA operator by the latter's announcement that the program is being transmitted for a fee to commercial subscribers.
- (g) The FM licensee or permittee shall maintain logs for the SCA operations. In the program log, the following entries shall be made:

- (1) An entry of the time each station identification announcement (call letters' and location) is made.
- (2) An entry describing the material transmitted in each hour segment. If a speech is made by a political candidate. the name and political affiliations of such speaker shall be entered.
- (3) An entry showing that sponsorship and mechanical record announcements, when required under paragraph (f) of this section, have been made, and the time of the latter announcements.
- (h) The requirements of § 3.281 (b) (1)-(4) inclusive and (c) and §§ 3.282 to 3.286, inclusive, are equally applicable to logs to be maintained during the SCAoperation.
- (i) The requirements of § 3.265 with respect to operators and the provisions of § 3.274 relating to remote control operation are equally applicable to operation during the SCA period.
- (j) The licensee must observe all technical rules and standards applicable to FM broadcast stations when conducting the SCA operation. (For criteria applicable to the multiplex SCA operation, see § 3.318.)

FM TECHNICAL STANDARDS

§ 3.301 Introduction. (a) There are presented herein the Commission's engineering standards relating to the allocation and operation of FM broadcast stations. These standards also apply to stations. noncommercial educational FM broadcast stations, except as noted herein. The Commission's rules and regulations contain references to these standards, which have been approved by the Commission and thus are considered as reflecting its opinion in all matters involved.

- (b) The standards set forth herein are those deemed necessary for the construction and operation of FM broadcast stations to meet the requirements of technical regulations and for operation in the public interest along technical lines not otherwise enunciated. These standards are based upon the best engineering data available, including evidence at hearings, conferences with radio engineers, and data supplied by manufacturers of radio equipment and by licensees of FM broadcast stations. These standards are complete in themselves and supersede previous engineering standards or policies of the Commission concerning FM broadcast stations. While these standards provide for flexibility and indicate the conditions under which they are applicable, it is not expected that material deviation from the fundamental principles will be recognized unless full information is submitted as to the need and reasons therefor.
- (c) These standards will necessarily be revised from time to time as progress is made in the art. The Commission will accumulate and analyze engineering data available as to the progress of the art so that these standards may be kept current with technical developments.
- § 3.310 Definitions—(a) FM broadcast station. The term "FM broadcast station" means a station employing frequency modulation in the FM broadcast

band and licensed primarily for the transmission of radiotelephone emissions intended to be received by the general public.

(b) Frequency modulation. The term "frequency modulation" means a system of modulation where the instantaneous radio frequency varies in proportion to the instantaneous amplitude of the modulating signal (amplitude of modulating signal to be measured after pre-om-phasis, if used) and the instantaneous radio frequency is independent of the frequency of the modulating signal.

(c) FM broadcast band. The term "FM broadcast band" means the band of frequencies extending from 88 to 108 megacycles, which includes those assigned to noncommercial educational

broadcasting.

(d) Center frequency. The term "center frequency" means:

- (1) The average frequency of the emitted wave when modulated by a sınusoidal signal.
- (2) The frequency of the emitted wave without modulation.
- (e) Frequency swing. The term "frequency swing" means the instantaneous departure of the frequency of the emitted wave from the center frequency, resulting from modulation.
- (f) FM broadcast channel. The term "FM broadcast channel" means a band of frequencies 200 kilocycles wide and is designated by its center frequency. Channels for FM broadcast stations begin at 88.1 megacycles and continue in successive steps of 200 kilocycles to and including 107.9 megacycles.

The term (g) Antenna field gain. "antenna field gain" of an FM broadcast antenna means the ratio of the effective free space field intensity produced at one mile in the horizontal plane expressed in millivolts per meter for 1 kilowatt antenna input power to 137.6 my/m.

- (h) Free space field intensity. Tho term "free space field intensity" means the field intensity that would exist at a point in the absence of waves reflected from the earth or other reflecting objects.
- (i) Multiplex transmission. The term "multiplex transmission" means the simultaneous transmission of two or more signals within a single channel. Multiplex transmission as applied to FM broadcast stations means the transmission of facsimile or other signals in addition to the regular broadcast signals.
- (j) Percentage modulation. The term "percentage modulation" as applied to frequency modulation means the ratio of the actual frequency swing to the frequency swing defined as 100 percent modulation, expressed in percentage, For FM broadcast stations a frequency swing of ±75 kilocycles is defined as 100 percent modulation.
- (k) Effective radiated power The term "effective radiated power" means the product of the antenna power (transmitter output power less transmission line loss) times (1) the antenna power gain, or (2) the antenna field gain squared. Where circular or elliptical polarization is employed the term effective radiated power is applied separately

to the horizontal and vertical components of radiation. For allocation purposes, the effective radiated power authorized is the horizontally polarized component of radiation only.

(1) Service area. The term "service area" as applied to FM broadcasting means the service resulting from an assigned effective radiated power and antenna height above average terrain.

(m) Antenna height above average terrain. (1) The term "antenna height above average terrain" means the height of the radiation center of the antenna above the terrain 2 to 10 miles from the antenna. (In general a different antenna height will be determined for each direction from the antenna. The average of these various heights is considered as the antenna height above average terrain.)

(2) Where circular or elliptical polarization is employed the antenna height above average terrain shall be based upon the height of the radiation center of the antenna which transmits the horizontal component of radiation.

(n) Field intensity. The term "field intensity" as used in these standards shall mean the electric field intensity in the horizontal direction.

(o) Index of cooperation. The index of cooperation as applied to facsimile broadcasting is the product of the number of lines per inch, the available line length in inches, and the reciprocal of the line-use ratio (e. g., 105×8.2×8/7=984)

(p) *Line-use ratio*. The term "line-use ratio" as applied to facsimile broadcasting is the ratio of the available line to the total length of scanning line.

(q) Available line. The term "available line" means the portion of the total length of scanning line that can be used specifically for picture signals.

(r) Rectilinear scanning. The term "rectilinear scanning" means the process of scanning an area in a predetermined sequence of narrow straight parallel strips.

(s) Optical density. The term "optical density" means the logarithm (to the base 10) of the ratio of incident to transmitted or reflected light.

§ 3.311 Engineering standards of allocation. (a) Sections 3.202 to 3.205 inclusive of the rules and regulations describe the basis for allocation of FM broadcast stations, including the division of the United States into Areas I and II.

(b) FM broadcast stations shall determine the extent of their 1 my/m and 50 uv/m contours in accordance with the methods prescribed in these Standards.

(c) Although some service is provided by tropospheric waves, the service area is considered to be only that served by the ground wave. The extent of service is determined by the point at which the ground wave is no longer of sufficient intensity to provide satisfactory broadcast service. The field intensity considered necessary for service is as follows:

Median field intensity

City business or factory areas____ 1 mv/m Rural areas_____ 50 uv/m

A median field intensity of 3 to 5 mv/m should be placed over the principal city to be served and for class B stations, a median field intensity of 1 mv/m should be placed over the business district of cities of 10,000 or greater within the metropolitan district served. A field intensity of 5 mv/m should be provided over the main studio of a class B station except as otherwise provided in § 3,205. These figures are based upon the usual noise levels encountered in the several areas and upon the absence of interference from other FM stations.

(d) A basis for allocation of satellite stations has not yet been determined. For the present, applications will be considered on their individual merits.

(e) The service area is predicted as follows: Profile graphs must be drawn for at least eight radials from the proposed antenna site. These profiles should be prepared for each radial beginning at the antenna site and extending to 10 miles therefrom. Normally the radials are drawn for each 45° of azimuth; however, where feasible the radials should be drawn for angles along which roads tend to follow. (The latter method may be helpful in obtaining topographical data where otherwise unavailable, and is particularly useful in connection with mobile field intensity measurements of the station and the correlation of such measurements with predicted field intensities.) In each case one or more radials must include the principal city or cities to be served, particularly in cases of rugged terrain, even though the city may be more than 10 miles from the antenna site. The profile graph for each radial should be plotted by contour intervals of from 40 to 100 feet and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. In instances of very rugged terrain where the use of contour intervals of 100 feet would result in several points in a short distance, 200or 400-foot contour intervals may be used for such distances. On the other hand, where the terrain is uniform or gently sloping the smallest contour interval indicated on the topographic map (see below) should be used, although only a relatively few points may be available. The profile graph should accurately indicate the topography for each radial, and the graphs should be plotted with the distance in miles as the abscissa and the elevation in feet above mean sea level as the ordinate. The profile graphs should indicate the source of the topographical data employed. The graph should also show the elevation of the center of the radiating system. graph may be plotted either on rectangular coordinate paper or on special paper which shows the curvature of the earth. It is not necessary to take the curvature of the earth into consideration in this procedure, as this factor is taken care of in the chart showing signal intensities (Fig. 1 of § 3.333)

(f) The average elevation of the 8-mile distance between 2 and 10 miles from the antenna site should then be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that ex-

ceeded for 50 percent of the distance) in sectors and averaging these values.

(g) To determine the distance to a particular contour, Figure 1 of § 3.333 concerning the range of FM broadcast stations should be used. This chart has been prepared for a frequency in the center of the band and is to be used for all FM broadcast channels, since little change results over this frequency range. The distance to a contour is determined by the effective radiated power and the antenna height. The height of the antenna used in connection with Figure 1 of § 3.333 should be the height of the center of the proposed antenna radiator above the average elevation obtained by the preceding method. The distances shown by Figure 1 of § 3.333 are based upon an effective radiated power of 1 kilowatt; to use the chart for other powers, the sliding scale associated with the chart should be trimmed and used as the ordinate scale. This sliding scale is placed on the chart with the appropriate graduation for power in line with the lower line of the top edge of the chart. The right edge of the scale is placed in line with the appropriate antenna height graduations and the chart then becomes direct reading for this power and antenna height. Where the antenna height is not one of those for which a scale is provided, the signal strength or distance is determined by interpolation between the curves connecting the equidistant points.

(h) The foregoing process of determining the extent of the required contours shall be followed in determining the boundary of the proposed service area. The areas within the required contours must be determined and submitted with each application for an FM broadcast station. Each application shall include a map showing these contours, and for this purpose sectional aeronautical charts or other maps having a convenient scale may be used. The map shall show the radials along which the profile charts and expected field strengths have been determined. The area within each contour should then be measured (by planimeter or other approximate means) to determine the number of square miles therein. In computing the area within the contours, exclude (1) areas beyond the borders of the United States, and (2) large bodies of water, such as ocean areas, gulfs, sounds, bays, large lakes,

etc., but not rivers.

(i) In cases where the terrain in one or more directions from the antenna site departs widely from the average elevation of the 2 to 10 mile sector, the application of this prediction method may indicate contour distances that are different from those which may be expected in practice. In such cases the prediction method should be followed, but a showing may be made if desired concerning the distance to the contour as determined by other means. Such showing should include data concerning the procedure employed and sample calculations. For example, a mountain ridge may indicate the practical limit of service although the prediction method may indicate the contour elsewhere. In cases of such limitation, the map of predicted coverage should show both the regular predicted area and the area as limited or extended by terrain. Both areas should be measured as previously described; the area obtained by the regular prediction method should be given in the application form, with a supplementary note giving the limited or extended area. In special cases the Commission may require additional information as to the terrain in the proposed service area.

(j) In determining the population served by FM broadcast stations, it is considered that the built-up city areas and business districts in cities having over 10,000 population and located beyond the 1 my/m contour do not receive adequate service. Minor civil division maps (1950 census) should be used in making population counts, excluding cities not receiving adequate service. Where a contour divides a minor division, uniform distribution of population within the division should be assumed in order to determine the population included within the contour unless a more accurate count is available.

§ 3.312 Topographic data. (a) In the preparation of the profile graphs previously described, and in determining the location and height above mean sea level of the antenna site, the elevation or contour intervals shall be taken from United States Geological Survey Topographic Quadrangle Maps, United States Army Corps of Engineers Maps or Tennessee Valley Authority maps, whichever is the latest, for all areas for which such maps are available. If such maps are not published for the area in question, the next best topographic information should be used. Topographic data may sometimes be obtained from state and municipal agencies. The data from the Sectional Aeronautical Charts (including bench marks) or railroad depot elevations and highway elevations from road maps may be used where no better information is available. In cases where limited topographic data can be obtained, use may be made of an altimeter in a car driven along/roads extending generally radially from the transmitter site.

(b) The Commission will not ordinarily require the submission of topographical maps for areas beyond 15 miles from the antenna site, but the maps must include the principal city or cities to be served. If it appears necessary, additional data may be requested.

(c) The United States Geological Survey Topography Quadrangle Sheets may be obtained from the United States Geological Survey Department of the Interior, Washington, D. C., for 20 cents each. The Sectional Aeronautical Charts are available from the United States Coast and Geodetic Survey, Department of Commerce, Washington, D. C., for 25 cents each. These maps may also be secured from branch offices and from authorized agents or dealers in most principal cities.

§ 3.313 Interference standard. (a) Field intensity measurements are preferable in predicting interference between FM broadcast stations and should be used, when available, in determining the extent of interference. (For methods and procedure, see § 3.314.) In lieu

of measurements, the interference should be predicted in accordance with the method described herein.

(b) Objectionable interference is considered to exist when the interfering signal exceeds that given by the following ratios. (The desired signal is median field- and the undesired signal is the tropospheric signal intensity exceeded for 1 percent of the time.)

Ratio of desired to undesired signals

Same channel 10:1.
200 kc 2:1.
400 kc 1:100.
800 kc and above No restriction.

¹Intermediate frequency amplifiers of most FM broadcast receivers are designed to operate on 10.7 megacycles. For this reason the assignment of two stations in the same area, one with a frequency 10.6 or 10.8 megacycles removed from that of the other, should be avoided if possible.

(c) Stations normally will not be authorized to operate in the same city or in nearby cities with a frequency separation of less than 800 kc.. Provided, That stations may be authorized to operate in nearby cities with a frequency separation of not less than 400 kc. where necessary in order to provide an equitable and efficient distribution of facilities: And provided further That class B stations will not be authorized in the same metropolitan district with a frequency separation of less than 800 kc. In the assignment of FM broadcast facilities the Commission will endeavor to provide the optimum use of the channels in the band, and accordingly may assign a channel different from that requested in an application.

(d) In predicting the extent of interference within the ground wave service area of a station, use should be made of the groundwave chart. (Figure 1 of § 3.333.)

(e) In determining the points at which the interference ratio is equal to the values shown in paragraph (b) of this section, the field intensities for the two interfering signals under consideration should be computed for a considerable number of points along the line between the two stations. Using this data, field intensity versus distance curves should be plotted (e.g., cross-curves on graph paper) in order to de-termine the points on this path where the interference ratios exist. The points established by this method together with the points along the contours where the same ratios are determined, are considered to be generally sufficient to predict the area of interference. Additional points may be required in the case of irregular terrain or the use of directional antenna systems.

(f) The area of interference, if any shall be shown in connection with the map of predicted coverage, required by the application form; together with the basic data employed in computing such interference. The map shall show the interference within the 50 uv/m contour.

§ 3.314 Field intensity measurements in allocation. (a) When field intensity measurements are required by the Commission's rules or when employed in de-

termining the extent of service or interference of existing stations, such measurements should be made in accordance with the procedure outlined herein.

(b) Measurements made to determine the service and interference areas of FM broadcast stations should be made with mobile equipment along roads which are as close and similar as possible to the radials showing topography which were submitted with the application for construction permit. Suitable measuring equipment and a continuous recording device must be employed, the chart of which is either directly driven from the speedometer of the automobile in which the equipment is mounted or so arranged that distances and identifying landmarks may be readily noted. The measuring equipment must be calibrated against recognized standards of field intensity and so constructed that it will maintain an acceptable accuracy of measurement while in motion or when stationary The equipment should be so operated that tha recorder chart can be calibrated directly in field intensity in order to facilitate analysis of the chart. The receiving antenna shall be primarily responsive to the horizontal electric field and should be nondirectional unless otherwise authorized. Authorization to use a halfwave dipole may be requested by filing application with the Commission prior to the making of measurements. The application may be filed by letter describing the proposed antenna, the method of installation and operation, and calibration procedures. Such authorization will remain in effect throughout the series of measurements for which granted.

(c) Mobile measurements should be made with a minimum chart speed of 3 inches per mile and preferably 5 or 6 inches per mile. Locations shall be noted on the recorder chart as frequently as necessary to definitely fix the relation between the measured field intensity and the location. The time constant of the equipment should be such to permit adequate analysis of the charts, and the time constant employed shall be shown. Measurements should be made to a point on each radial well beyond the particular contour under investigation. The transmitter power shall be maintained as close as possible to the authorized power throughout the survey.

(d) After the measurements are completed, the recorder chart shall be divided into not less than 15 sections on each equivalent radial from the station. Tho field intensity in each section of the chart shall be analyzed to determine the field intensity received 50 percent of the distance (median field) throughout the section, and this median field intensity associated with the corresponding sector of the radial. The field intensity figures must be corrected for a receiving antenna elevation of 30 feet and for any directional effects of the automobile not otherwise compensated. This data should be plotted for each radial, using log-log coordinate paper with distance as the abscissa and field intensity as the ordinate. A smooth curve should be drawn through these points (of median fields for all sectors), and this curve used to determine the distance to the desired contour. The distances obtained for each radial may then be plotted on the map of predicted coverage or on polar coordinate paper (excluding water areas, etc.) to determine the service and interference areas of a station.

(e) In making measurements to establish the field intensity contours of a station, mobile recordings should be made along each of the radials drawn in § 3.311 (e) Measurements should extend from the vicinity of the station out to the 1 my/m measured contour and somewhat beyond (at the present time it is not considered practical to conduct mobile measurements far beyond this contour due to the fading ratio at weak fields, which complicates analysis of the These measurements would be made for the purpose of determining the variation of the measured contours from those predicted, and it is expected that initially the correlation of the measured 1 mv/m with the predicted 1 mv/m contour will be used as a basis in determining adherence to authorized service areas within the 50 uv/m contour.

(f) In addition to the 1 mv/m contour, the map of measured coverage shall show the 50 uv/m contour as determined by employing Figure 1 of § 3.333 and the distance to the 1 mv/m contour along each radial. The sliding scale shall be placed on the figure at the appropriate antenna height for the radial in question and then moved so the distance to the 1 mv/m contour (as measured) and the 1 mv/m mark are opposite. The distance to the 50 uv/m contour is then given opposite the 50 uv/m mark on the scale.

(g) In certain cases the Commission may desire more information or recordings- and in these instances special instructions will be issued. This may include fixed location measurements to determine tropospheric propagation and fading ratios.

(h) Complete data taken in conjunction with field intensity measurements shall be submitted to the Commission in affidavit form including the following:

(1) Map or maps showing the roads or points where measurements were made, the service and/or interference areas determined by the prediction method and by the measurements, and any unusual terrain characteristics existing in these areas. (This map may preferably be of a type showing topography in the area.)

(2) If a directional transmitting antenna is employed, a diagram on polar coordinate paper showing the predicted free space field intensity in millivolts per meter at one mile in all directions. (See § 3.316.)

(3) A full description of the procedures and methods employed including the type of equipment, the method of installation and operation, and calibration procedures

tion procedures.
(4) A representative sample of the recording tape, including calibration.

(5) Antenna system and power employed during the survey.

(6) Name, address, and qualifications of the engineer or engineers making the measurements.

(i) All data shall be submitted to the Commission in triplicate.

Transmitter location. § 3.315 The transmitter location should be as near the center of the proposed service area as possible consistent with the applicant's ability to find a site with sufficient elevation to provide service throughout the area. Location of the antenna at a point of high elevation is necessary to reduce to a minimum the shadow effect on propagation due to hills and buildings which may reduce materially the intensity of the station's signals in a particular direction. The transmitting site should be selected consistent with the purpose of the station, i. e., whether it is intended to serve a small city, a metropolitan area, or a large region. Inasmuch as service may be provided by signals of 1 mv/m or greater field intensities in metropolitan areas, and masmuch as signals as low as 20 uv/m may provide service in rural areas. considerable latitude in the geographical location of the transmitter is permitted; however, the necessity for a high elevation for the antenna may render this problem difficult. In general, the transmitting antenna of a station should be located at the most central point at the highest elevation available. In providing the best degree of service to an area, it is usually preferable to use a high antenna rather than a lower antenna with increased transmitter power. The location should be so chosen that line-ofsight can be obtained from the antenna over the principal city or cities to be served; in no event should there be a major obstruction in this path.

(b) The transmitting location should be selected so that the 1 mv/m contour encompasses the urban population within the area to be served and the 50 uv/m or the interference free contour coincides generally with the limits of the area to be served. It is recognized that topography, shape of the desired service area, and population distribution may make the choice of a transmitter location difficult. In such cases consideration may be given to the use of a directional antenna system, although it is generally preferable to choose a site where a nondirectional antenna may be employed.

(c) In cases of questionable antenna locations it is desirable to conduct propagation tests to indicate the field intensity expected in the principal city or cities to be served and in other areas, particularly where severe shadow problems may be expected. In considering applications proposing the use of such locations. the Commission may require site tests to be made. Such tests should be made in accordance with the measurement Commission. Test transmitters should employ an antenna having a height as close as possible to the proposed antenna height, using a balloon or other support if necessary and feasible. Information concerning the authorization of site tests may be obtained from the Commission upon request.

(d) Present information is not sufficiently complete to establish "blanket areas" of FM broadcast stations, which are defined as those areas adjacent to the transmitters in which the reception

of other stations is subject to interference due to the strong signal from the stations. Where it is found necessary to locate the transmitter in a residential area where blanketing problems may appear to be excessive, the application must include a showing concerning the availability of other sites. The authorization of station construction in areas where blanketing problems appear to be excessive will be on the basis that the applicant will assume full responsibility for the adjustment of reasonable complaints arising from excessively strong signals of the applicant's station. As a means of minimizing interference problems it is expected that stations adjacent in location will generally be assigned frequencies that are generally adjacent. Insofar as is feasible, frequency assignments for stations at separated locations will also be separated.

(e) Cognizance must of course be taken regarding the possible hazard of the proposed antenna structure to aviation and the proximity of the proposed site to airports and airways. Procedures and standards with respect to the Commission's consideration of proposed antenna structures which will serve as a guide to persons intending to apply for radio station licenses are contained in Part 17 of this chapter (Rules Concerning the Construction, Marking and Lighting of Antenna Structures).

§ 3.316 Antenna systems. (a) It shall be standard to employ horizontal polarization; however, circular or elliptical polarization may be employed if desired. Clockwise or counterclockwise rotation may be used. The supplemental vertically polarized effective radiated power required for circular or elliptical polarization shall in no event exceed the effective radiated power authorized.

(b) The antenna must be constructed so that it is as clear as possible of surrounding buildings or objects that would cause shadow problems.

(c) Applications proposing the use of directional antenna systems must be accompanied by the following:

Complete description of the proposed antenna system.

(2) Orientation of array with respect to true north; time phasing of fields from elements (degrees leading or lagging) space phasing of elements (in feet and in degrees), ratio of fields from elements.

be expected. In considering applications proposing the use of such locations, the Commission may require site tests to be made. Such tests should be made in accordance with the measurement procedure previously described, and full data thereon must be supplied to the Commission. Test transmitters should

(4) Name, address, and qualifications of the engineer making the calculations.

(d) Applications proposing the use of FM broadcast antennas in the immediate vicinity (i. e., 200 feet or less) of (1) other FM broadcast antennas, or (2) television broadcast antennas for frequencies adjacent to the FM broadcast band, must include a showing as to the expected effect, if any, of such proximate operation.

- (e) In cases where it is proposed to use a tower of a standard broadcast station as a supporting structure for an FM broadcast antenna, an application for construction permit (or modification of construction permit) for such station must be filed for consideration with the FM application. Applications may be required for other classes of stations when their towers are to be used in connection with FM broadcast stations.
- (f) When an FM broadcast antenna is mounted on a nondirectional standard broadcast antenna, new resistance measurements must be made of the standard broadcast antenna after installation and testing of the FM broadcast antenna. During the installation and until the new resistance determination is approved, the standard broadcast station licensee should apply for authority (informal application) to operate by the indirect method of power determination. The FM broadcast license application will not be considered until the application form concerning resistance measurements is filed for the standard broadcast station.
- (g) When an FM broadcast antenna is mounted on an element of a standard broadcast directional antenna, a full engineering study concerning the effect of the FM broadcast antenna on the directional pattern must be filed with the application concerning the standard broadcast station. Depending upon the individual case, the Commission may require readjustment and certain field intensity measurements of the standard broadcast station following the completion of the FM broadcast antenna system.
- (h) When the proposed FM broadcast, antenna is to be mounted on a tower in the vicinity of a standard broadcast directional array and it appears that the operation of the directional antenna system may be affected, an engineering study must be filed with the FM broadcast application concerning the effect of the FM broadcast antenna on the directional pattern. Readjustment and field intensity measurements of the standard broadcast station may be required following construction of the FM broadcast antenna.
- (i) Information regarding data required in connection with standard broadcast directional antenna systems may be found in § 3.150 of this chapter. (See also Standard Broadcast Technical Standards.)
- (j) In the event a common tower is used by two or more licensees for antenna and/or antenna supporting purposes, the licensee who is owner of the tower shall assume full responsibility for the installation and maintenance of any painting or lighting requirements. In the event of shared ownership, one licensee shall assume such responsibility and advise the Commission accordingly.
- (k) It is recommended that an emergency FM broadcast antenna be installed, or, alternately, an auxiliary transmission line or lines if feasible in the particular circumstances. Data thereon should be supplied with the application for construction permit; if proposed after station construction, an informal application should be submitted to the Commission.

- (1) When necessary for the protection of air navigation, the antenna and supporting structure shall be painted and illuminated in accordance with the specifications supplied by the Commission pursuant to section 303 (q) of the Communications Act of 1934, as amended.
- § 3.317 Transmitters and associated equipment—(a) Electrical performance standards. The general design of the FM broadcast transmitting system (from input terminals of microphone preamplifier, through audio facilities at the studio, through lines or other circuits between studio and transmitter, through audio facilities at the transmitter, and through the transmitter, but excluding equalizers for the correction of deficiencies in microphone response) shall be in accordance with the following principles and specifications:
- (1) Standard power ratings and operating power range of FM broadcast transmitters shall be in accordance with the following table:

	Operating power
Standard power rating:	range
10 watts 1	10 watts or less.
250 watts	250 watts or less
1 kw	250 watts-1 kw.
3 kw	1-3 kw.
5 kw	1-5 kw.
10. kw	3-10 kw.
25 kw	10-25 kw.
50 kw	10-50 kw.
100 km	

- ¹For noncommercial educational FM stations.
- (i) Composite transmitters may be authorized with a power rating different from the above table, provided full data is supplied in the application concerning the basis employed in establishing the rating and the need therefor. The operating range of such transmitters shall be from one-third of the power rating to the power rating.
- (ii) The transmitter shall operate satisfactorily in the operating power range with a frequency swing of ± 75 kilocycles, which is defined as 100 percent modulation.
- (2) The transmitting system shall be capable of transmitting a band of frequencies from 50 to 15,000 cycles. Preemphasis shall be employed in accordance with the impedance-frequency characteristic of a series inductanceresistance network having a time constant of 75 microseconds. (See Fig. 2 of § 3.333.) The deviation of the system response from the standard preemphasis curve shall lie between two limits as shown in-Figure 2 of § 3.333. The upper of these limits shall be uniform (no deviation) from 50 to 15,000 cycles. The lower limit shall be uniform from 100 to 7,500 cycles, and 3 db. below the upper limit; from 100 to 50 cycles the lower limit shall fall from the 3 db. limit at a uniform rate of 1 db. per octave (4 db. at 50 cycles) from 7,500 to 15,000 cycles the lower limit shall fall from the 3 db. limit at a uniform rate of 2 db. per octave (5 db. at 15,000 cycles)
- (3) At any modulation frequency between 50 and 15,000 cycles and at modulation percentages of 25, 50, and 100 percent, the combined audio frequency harmonics measured in the output of the system shall not exceed the root-mean-

square values given in the following table:

Disto	rtion
Modulating frequency: perc	cut
50 to 100 cycles	3, 5
100 to 7,500 cycles	2, 5
'7,500 to 15,000 cycles	8.0

- (i) Measurements shall be made employing 75 microsecond deemphasis in the measuring equipment and 75 microsecond preemphasis in the transmitting equipment, and without compression if a compression amplifier is employed. Harmonics shall be included to 30 kg.
- (ii) It is recommended that none of the three main divisions of the system (transmitter, studio to transmitter circuit, and audio facilities) contribute over one-half of these percentages since at some frequencies the total distortion may become the arithmetic sum of the distortions of the divisions.
- (4) The transmitting system output noise level (frequency modulation) in the band of 50 to 15,000 cycles shall be at least 60 decibels below 100 percent modulation (frequency swing of ±75 kllocycles) The measurement shall be made using 400 cycle modulation as a reference. The noise-measuring equipment shall be provided with standard 75 microsecond deemphasis; the ballistic characteristics of the instrument shall be similar to those of the standard VU meter.
- (5) The transmitting system output noise level (amplitude modulation) in the band of 50 to 15,000 cycles shall be at least 50 decibels below the level representing 100 percent amplitude modulation. The noise-measuring equipment shall be provided with standard 75-microsecond deemphasis; the ballistic characteristics of the instrument shall be smilar to those of the standard VU meter.
- (6) Automatic means shall be provided in the transmitter to maintain the assigned center frequency within the allowable tolerance (±2000 cycles)
- (7) The transmitter shall be equipped with suitable indicating instruments for the determination of operating power and with other instruments as are necessary for proper adjustment, operation, and maintenance of the equipment (see § 3.320)
- (8) Adequate provision shall be made for varying the transmitter output power to compensate for excessive variations in line voltage or for other factors affecting the output power.
- (9) Adequate provision shall be provided in all component parts to avoid overheating at the rated maximum output power.
- (10) Means should be provided for connection and continuous operation of approved frequency and modulation monitors.
- (11) If a limiting or compression amplifier is employed, precaution should be maintained in its connection in the circuit due to the use of preemphasis in the transmitting system.
- (b) Construction. In general, the transmitter shall be constructed either on racks and panels or in totally enclosed frames protected as required by article 810 of the National Electrical Code and set forth below.

Note: The pertinent sections of article 810 of the National Electrical Code read as follows:

"8191. General. Transmitters shall comply

"8191. General.
with the following:
""""
Traclosing. The transmitter shall be arated from the operating space by a barrier or other equivalent means, all metallic parts of which are effectually connected to ground.

"b. Grounding of controls. All external metallic handles and controls accessible to the operating personnel shall be effectually grounded. No circuit in excess of 150 volts shall have any parts exposed to direct contact. A complete dead-front type of switchboard is preferred.

"c. Interlocks on doors. All access doors shall be provided with interlocks which will disconnect all voltages in excess of 350 volts when any access door is opened."

(1) Means shall be provided for making all tuning adjustments, requiring voltages in excess of 350 volts to be applied to the circuit, from the front of the panels with all access doors closed.

(2) Proper bleeder resistors or other automatic means shall be installed across all capacitor banks to lower any voltage which may remain accessible with access door open to less than 350 volts within 2 seconds after the access door is opened.

(3) All plate supply and other high voltage equipment, including transformers, filters, rectifiers and motor generators, shall be protected so as to prevent injury to operating personnel.

(i) Commutator guards shall be provided on all high voltage rotating machinery. Coupling guards should be provided on motor generators.

(ii) Power equipment and control panels of the transmitter shall meet the above requirements (exposed 220 volt AC switching equipment on the front of the power control panels is not recommended but is not prohibited)

(iii) Power equipment located at a broadcast station but not directly associated with the transmitter (not purchased as part of same) such as power distribution panels, are not under the jurisdiction of the Commission; therefore § 3.254 does not apply.

(4) Metering equipment:

(i) All instruments having more than 1,000 volts potential to ground on the movement shall be protected by a cage or cover in addition to the regular case. (Some instruments are designed by the manufacturer to operate safely with voltages in excess of 1,000 volts on the movement. If it can be shown by the manufacturer's rating that the instrument will operate safely at the applied potential, additional protection is not necessary.)

(ii) In case the plate voltmeter is located on the low potential side of the multiplier resistor with the potential of the high potential terminal of the instrument at or less than 1,000 volts above ground, no protective case is required. However, it is good practice to protect voltmeters subject to more than 5,000 volts with suitable over-voltage protective devices across the instrument terminals in case the winding opens.

(iii) Transmission line meters and any other radio frequency instrument which may be necessary for the operator to read shall be so installed as to be easily and accurately read without the operator having to risk contact with circuits carrying high potential radio frequency energy.

- (5) It is recommended that component parts comply as much as possible with the component specifications designated by the Army-Navy Electronics Standards Agency.
- (c) Wiring and shielding. transmitter panels or units shall be wired in accordance with standard switchboard practice, either with insulated leads properly cabled and supported or with rigid bus bar properly insulated and protected.
- (2) Wiring between units of the transmitter, with the exception of circuits carrying radio frequency energy, shall be installed in conduits or approved fiber or metal raceways for protection from mechanical injury.
- (3) Circuits carrying radio frequency energy between units shall be coaxial, two wire balanced lines, or properly shielded.
- (4) All stages or units shall be adequately shielded and filtered to prevent interaction and radiation.
- (5) The frequency and modulation monitors and associated radio frequency lines to the transmitter shall be thoroughly shielded.

(d) Installation. (1) The installation shall be made in suitable quarters.

(2) Since an operator must be on duty at the transmitter control point during operation, suitable facilities for his welfare and comfort shall be provided at the control point.

(e) Spare tubes. A spare tube of every type employed in the transmitter and frequency and modulation monitors shall be kept on hand at the equipment location. When more than one tube of any type are employed, the following table determines the number of spares of that type required:

Spares Number of each type employed: required 6 to 8___ 9 or more____

An accurate circuit diagram and list of required spare tubes, as furnished by the manufacturer of the equipment, shall be retained at the transmitter location.

(f) Operation. In addition to specific requirements of the rules governing FM broadcast stations, the following operating requirements are specified:

(1) The maximum percentage of modulation shall be maintained in accordance with § 3.268. However, precautions shall be taken so as not to substantially alter the dynamic characteristics of musical programs.

(2) Spurious emissions, including radio frequency harmonics, shall be maintained at as low a level as practicable at all times in accordance with good engineering practice.

(3) If a limiting or compression amplifier is employed, care should be maintained in its use due to preemphasis in the transmitting system.

(g) Studio equipment. (1) Studio equipment shall be subject to all the above requirements where applicable except as follows:

(i) If properly covered by an underwriter's certificate, it will be considered as satisfying safety requirements.

(ii) Section 8191 of article 810 of the National Electrical Code shall apply for voltages only in excess of 500 volts.

(2) No specific requirements are made with regard to the microphones to be employed. However, microphone performance (including compensating networks, if employed) shall be compatible with the required performance of the transmitting system.

(3) No specific requirements are made relative to the design and acoustical treatement of studios. However, the design of studios, particularly the main studio, shall be compatible with the required performance characteristics of FM broadcast stations.

§ 3.318 Facsimile: engineering standards. The following standards apply to facsimile broadcasting under § 3.266:

(a) Rectilinear scanning shall be employed, with scanning spot progressing from left to right and scanned lines progressing from top to bottom of subject

(b) The standard index of cooperation shall be 984.

(c) The number of scanning lines per minute shall be 360.

(d) The line-use ratio shall be %, or

315° of the full scanning cycle.

(e) The % cycle or 45° not included in the available scanning line shall be divided into 3 equal parts, the first 15° being used for transmission at approximately white level, the second 15° for transmission at approximately black level, and the third 15° for transmission at approximately white level.

(f) An interval of not more than 12 seconds shall be available between two pages of subject copy, for the transmission of a page-separation signal and/or

other services.

(g) Amplitude or frequency (frequency-shift) modulation of the subcarrier shall be used.

(h) Subcarrier modulation shall normally vary approximately linearly with the optical density of the subject copy.

(i) Negative modulation shall be used, i. e., for amplitude modulation of subcarrier, maximum subcarrier amplitude and maximum radio frequency swing on black; for frequency modulation of subcarrier, highest instantaneous frequency of subcarrier on black.

(j) Subcarrier noise level shall be maintained at least 30 db. below maximum (black) picture modulation level,

at the radio transmitter input.

(k) The facsimile subcarrier transmission shall be conducted in the frequency range between 22 and 28 kilocycles. Should amplitude modulation of the subcarrier be employed the subcarrier frequency shall be 25 kilocycles with sidebands extending not more than 3 kilocycles in either direction from the subcarrier frequency. Should frequency modulation of the subcarrier be employed the total swing of the subcarmer shall be within the range from 22 to 28 kilocycles, with 22 kilocycles corresponding to white and 28 kilocycles corresponding to black on the transmitted copy. In multiplex operation the modulation of the FM carrier by the modulated subcarrier shall not exceed 5 per-In simplex operation the cent. modulation of the FM carrier by the

modulated subcarrier shall not exceed 30 percent.

- (1) During periods of multiplex facsimile transmission, frequency modulation of the FM carrier caused by the aural signals shall, in the frequency range from 20 to 30 kilocycles, be at least 60 db. below 100 percent modulation. Frequency modulation of the FM carrier caused by the facsimile signals shall, in the frequency range from 50 to 15,000 cycles, be at least 60 db. below 100 percent modulation.
- § 3.319 Subsidiary communications multiplex operations: engineering standards. The following standards apply to subsidiary communications multiplex operations under §§ 3.293 to 3.295.
- (a) Frequency modulation of subcarrier shall be used.
- (b) The instantaneous frequency of the subcarriers shall at all times lie within the range 20 to 75 kilocycles.
- (c) The arithmetic sum of the modulation of the main carrier by the subcarriers shall not exceed 30 percent.

Note: Inasmuch as presently approved FM modulation monitors have been designed to meet requirements for modulation frequencies of from 50 to 15,000 cycles, the use of such monitors for reading the modulation percentages during multiplex operation may not be appropriate since the subcarriers utilized are above 20,000 cycles.

(d) The total modulation of the main carrier, including the subcarriers, shall meet the requirements of § 3.268.

- (e) Frequency modulation of the main carrier caused by the subcarrier operation shall, in the frequency range 50 to 15,000 cycles, be at least 60 db. below 100 percent modulation.
- § 3.320 Indicating instruments—specifications. The following requirements and specifications shall apply to indicating instruments used by FM broadcast stations:
- (a) Instruments indicating the plate current or plate voltage of the last radio-stage (linear scale instruments) shall meet the following specifications:
- (1) Length of scale shall be not less than $2\%_0$ inches.
- (2) Accuracy shall be at least 2 percent of the full scale reading.
- (3) Scale shall have at least 40 divisions.
- (4) Full scale reading shall not be greater than five times the minimum normal indication.
- (b) Instruments indicating transmission line current or voltage shall meet the following specifications:
- (1) Instruments having linear scales shall meet the requirements of paragraph (a) (1) (2) (3), and (4) of this section.
- (2) Instruments having logarithmic or square law scales:
- (i) Shall meet the requirements of paragraph (a) (1) and (2) of this section for linear scale instruments.
- (ii) Full scale reading shall not be greater than three times the minimum normal indication.
- (iii) No scale division above one-third full scale reading shall be greater than one-thirtieth of the full scale reading.
- (c) Radio frequency instruments having expanded scales:

- (1) Shall meet the requirements of paragraph (a) (1), (2) and (4) of this section for linear scale instruments.
- (2) No scale division above one-fifth full scale reading shall be greater than one-fiftieth of the full scale reading.
- (3) The meter face shall be marked with the words "Expanded scale" or the abbreviation thereof (E. S.)
- (d) No required instrument, the accuracy of which is questionable, shall be employed. Repairs and recalibration of instruments shall be made by the manufacturer, or by an authorized instrument repair service of the manufacturer, or by some other properly qualified and equipped instrument repair service. In any event the repaired instrument must be supplied with a certificate of calibration
- (e) Recording instruments may be employed in addition to the indicating instruments to record the transmission line current or voltage and the direct plate current and/or direct plate voltage of the last radio stage, provided that they do not affect the operation of the circuits or accuracy of the indicating instruments. If the records are to be used in any proceeding before the Commission as representative of operation, the accuracy must be the equivalent of the indicating instruments and the calibration shall be checked at such intervals as to insure the retention of the accuracy.
- (f) The function of each instrument used in the equipment shall be clearly and permanently shown on the instrument itself or on the panel immediately adjacent thereto.
- § 3.321 Auxiliary transmitters. Auxiliary transmitters may not exceed the power rating or operating power range of the main transmitter, but need not conform to the performance characteristics specified by § 3.317 (a) (2) to (a) (5) inclusive. The subsequent portions of § 3.317 apply to auxiliary transmitters.
- § 3.330 Frequency and modulation monitors at auxiliary transmitters. (a) The following shall govern the installation of approved frequency and modulation monitors at auxiliary transmitters of FM broadcast stations in compliance with these rules:
- (1) In case the auxiliary transmitter location is at a site different from that of the main transmitter, an approved frequency monitor shall be installed at the auxiliary transmitter except when the auxiliary transmitter can be monitored by means of the frequency monitor at the main transmitter. When the auxiliary transmitter is operated without a frequency monitor under this exemption, it shall be monitored by means of the frequency monitor at the main transmitter.
- (2) The licensee will be held strictly responsible for any center frequency deviation of the auxiliary transmitter in excess of 2,000 cycles from the assigned frequency, even though exempted by the above from installing an approved frequency monitor.
- (3) Installation of an approved modulation monitor at the location of the auxiliary transmitter, when different from that of the main transmitter, is optional with the licensee. However,

when it is necessary to operate the auxiliary transmitter beyond two calendar days, a modulation monitor shall be installed and operated at the auxiliary transmitter. The monitor (if taken from the main transmitter) shall be reinstalled at the main transmitter immodiately upon resumption of operation of the main transmitter.

(4) In all cases where the auxiliary transmitter and the main transmitter have the same location, the same frequency and modulation monitors may be used for monitoring both transmitters, provided they are so arranged as to be readily switched from one transmitter to the other.

§ 3.331 Requirements for type approval of frequency monitors. (a) General requirements. In general a frequency monitor for FM broadcast stations requires a stable source of radio frequency energy whose frequency is accurately known and a means of comparing the transmitter center frequency with this stable source. The visual indicator is calibrated to indicate the deviation of the transmitter center frequency from the frequency assigned.

(1) Approval of a frequency monitor for FM broadcast stations will be considered on the basis of data submitted by the manufacturer. Any manufacturer desiring to submit a monitor for approval shall supply the Commission with full

details (two sworn copies)

- (2) In approving a frequency monitor based on these tests and specifications, the Commission merely recognizes that the type of monitor has the inherent capability of functioning in compliance with § 3.252, if properly constructed, maintained and operated. The Commission accepts no responsibility beyond this and further realizes that monitors may have a limited range over which the visual indicator will determine deviations. Accordingly, it may be necessary that adjunct equipment be used to determine major deviations.
- (3) No change whatsoever will be permitted in the monitors sold under approval number issued by the Commission except when the licensee or the manufacturer is specifically authorized to make such changes. When it is desired to make any change, either mechanical or electrical, the details shall be submitted to the Commission for its consideration.
- (4) Approval is given subject to withdrawal if the unit proves defective in service and cannot be relied upon under usual conditions of maintenance and operation encountered in the average FM broadcast station. Withdrawal of approval means that no further units may be installed by FM broadcast stations for the purpose of complying with § 3.252; however, this will not affect units already sold unless it is found that there has been an unauthorized change in design or construction or that the material or workmanship is defective.
- (b) General specifications. The general specifications that frequency monitors shall meet before they will be approved by the Commission are as follows: (In connection with its type approval of FM equipment, the Commission may send a representative to observe

tests made of such equipment by the manufacturer.)

(1) The unit shall have an accuracy of at least ± 1000 cycles under ordinary conditions (temperature, humidity, power supply variations and other conditions which may affect its accuracy) encountered in FM broadcast stations throughout the United States, for any channel within the FM broadcast band.

(2) The range of the indicating device shall be at least from 2000 cycles below to 2000 cycles above the assigned

center frequency.

(3) The scale of the indicating device shall be so calibrated as to be accurately read within at least 100 cycles.

(4) Means shall be provided for adjustment of the monitor indication to agree with an external standard.

(5) The monitor shall be capable of continuous operation and its circuit shall be such as to permit continuous monitoring of the transmitter center frequency.

(6) Operation of the monitor shall have no deleterious effect on the operation of the transmitter or the signal emitted therefrom.

(c) Tests to be made for approval of FM broadcast frequency monitors. The manufacturer of a monitor shall submit data on the following at the time of requesting approval:

 Constancy of oscillator frequency as measured several times in 1 month.

(2) Contancy of oscillator frequency when subjected to vibration tests which would correspond to the treatment received in shipping, handling and installing the instrument.

(3) Accuracy of readings of the frequency deviation instrument.

(4) Functioning of frequency adjustment device.

(5) Effects on frequency and readings, of the changing of tubes, of voltage variations, and of variations of room temperature through a range not to exceed 10° to 40° C.

(6) Response of indicating instrument to small changes of frequency.

(7) General information on the effect of tilting or tipping or other tests to determine ability of equipment to withstand shipment.

(d) Various other tests may be made or required, such as effects of variation of input from the transmitter depending upon the character-of the apparatus.

(e) Tests shall be conducted in such a manner as to approximate actual operating conditions as nearly as possible. The equipment under test shall be operated on any channel in the FM broadcast band.

§ 3.332 Requirements for type approval of modulation monitors. (a) The modulation monitors may be a part of the frequency monitor. Approval of a modulation monitor for FM broadcast stations will be considered on the basis of data submitted by the manufacturer. Any manufacturer desiring to submit a monitor for approval shall supply the Commission with full details (two sworn copies).

(b) The specifications that the modulation monitor shall meet before it will be approved by the Commission are as follows: (In connection with its type approval of FM equipment, the Commission may send a representative to observe tests made of such equipment by the manufacturer.)

(1) A means for insuring that the transmitter input to the modulation monitor is proper.

(2) A modulation peak indicating device that can be set at any predetermined value from 50 to 120 percent modulation (±75 kc swing is defined as 100 percent modulation) and for either positive or negative swings (i. e., either above or below transmitter center frequency)

(3) A semi-peak indicator with a meter having the characteristics given below shall be used with a circuit such that peaks of modulation of duration between 40 and 90 milliseconds are indicated to 90 percent of full value and the discharge rate adjusted so that the pointer returns from full reading to 10 percent of zero within 500 to 800 milliseconds. A switch shall be provided so that this meter will read either positive or negative swings.

(i) The characteristics of the indicating meter are: (a) Speed. The time for one complete oscillation of the pointer shall be 250 to 350 milliseconds. The damping factor shall be between 16 and 200. (b) Scale. The meter scale shall be

similar in appearance to that of a standard VU meter. The scale length between 0 and 100 percent modulation markings should be at least 2.3 inches. In addition to other markings a small mark for 133 percent modulation and designated as such should be included for the purpose of testing transmitters with 100 kc swing.

(4) The accuracy of reading of percentage of modulation shall be within ±5 percent modulation percentage at any percentage of modulation up to 100 percent modulation.

(5) The frequency characteristic curve shall not depart from a straight line more than ±½ db. from 50 to 15,000 cycles. Distortion shall be kept to a minimum.

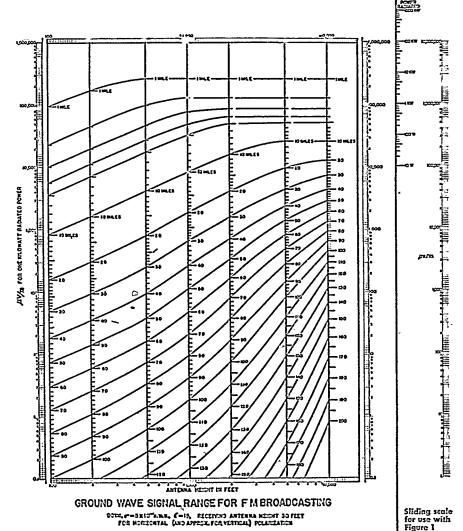
(6) The monitor shall not absorb appreciable power from the transmitter.

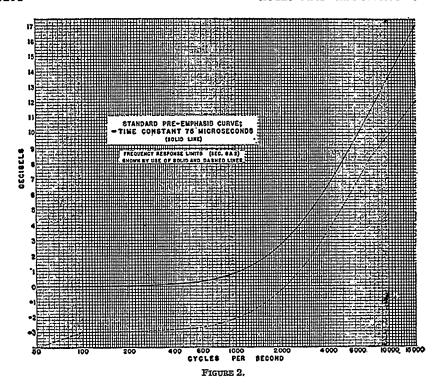
(7) Operation of the monitor shall have no deleterious effect on the operation of the transmitter.

(8) General design, construction, and operation shall be in accordance with good engineering practice.

§ 3.333 Engineering charts.

Note: Figures 1 and 2 as reproduced herein, due to their small scale, are not to be used in connection with material submitted to the F. C. C.





SUBPART C-NONCOMMERCIAL EDUCATIONAL FM BROADCAST STATIONS

CLASSIFICATION OF STATIONS AND ALLO-CATION OF FREQUENCIES

§ 3.501 Channels available for assignment. The channels available for non-commercial educational FM broadcasting are listed in the table below, together with numerical designations for convenience:

Frequency	Channel	Frequency	Channel
(Mc)	No.	(Mc)	No.
88.1	201	90.1	211
88.3	202	90.3	212
88.5	203	90.5	213
88.7	204	90.7	214
88.9	205	90.9	215
89.1	¹ 266	91.1	216
89.3	207	91.3	217
89.5	208	91.5	218
89.7	209	91.7	219
89.9	210	91.9	220

¹The frequency 89.1 Mc., Channel No. 206 in the New York City metropolitan area is reserved for the use of the United Nations with the equivalent of an antenna height of 500 feet above average terrain and effective radiated power of 20 kw., and the Commission will make no assignments which would cause objectionable interference with such use.

§ 3.502 State-wide plans. In considering the assignment of a channel for a noncommercial educational FM broadcast station, the Commission will take into consideration the extent to which each application meets the requirements of any state-wide plan for noncommercial educational FM broadcast stations filed with the Commission, provided that such plans afford fair treatment to public and private educational institutions, urban and rural, at the primary, secondary, higher, and adult educational levels, and appear otherwise fair and equitable.

§ 3.503 Licensing requirements and service. The operation of, and the service furnished by noncommercial educational FM broadcast stations shall be governed by the following:

(a) A noncommercial educational FM broadcast station will be licensed only to a nonprofit educational organization and upon showing that the station will be used for the advancement of an educational program.

(1) In determining the eligibility of publicly supported educational organizations, the accreditation of their respective state departments of education shall be taken into consideration.

(2) In determining the eligibility of privately controlled educational organizations, the accreditation of state departments of education and/or recognized regional and national educational accrediting organizations shall be taken into consideration.

(b) Each station may transmit programs directed to specific schools in a system or systems for use in connection with the regular courses as well as routine and administrative material pertaining thereto and may transmit educational, cultural, and entertainment programs to the public.

(c) Each station shall furnish a non-profit and noncommercial broadcast service. No sponsored or commercial program shall be transmitted nor shall commercial announcements of any character be made. A station shall not transmit the programs of other classes of broadcast stations unless all commercial announcements and commercial references in the continuity are eliminated.

§ 3.504 Frequency, power and service area. (a) In the assignment of frequency and power to a noncommercial educational FM broadcast station the Commission will consider with the appli-

cation: (1) the area served by applicant's existing educational facilities; and (2) the provisions of any statewide plan on file with the Commission which meets the requirements of § 3.502. A station licensed for transmitter power output of 10 watts or less normally will be licensed to operate on the frequency 88.1 megacycles; however, should it appear that operation on this frequency would cause objectionable interference, such station may be licensed to operate on the next-higher frequency that would not cause objectionable interference.

(b) The license of each noncommercial educational FM broadcast station licensed for transmitter power output of 10 watts or less shall specify the maximum authorized operating power output of the transmitter. The license of each noncommercial educational FM broadcast station licensed for transmitter power output above 10 watts shall specify the authorized effective radiated power of the station and the authorized operating power output of the transmitter.

(c) Each application for a new non-commercial educational FM broadcast station or increase in facilities of an existing station which proposes transmitter power output above 10 watts shall contain a determination of the antonna height above average terrain and the extent of the 1 my/m and 50 uv/m contours of the proposed station by the methods prescribed in the FM Technical Standards in Subpart B of this part.

§ 3.505 Standards of good engineering practice. The definitions and interference standards contained in the FM Technical Standards in Subpart B of this part shall be applicable to noncommercial educational FM broadcast stations. Other portions of such Standards shall be applicable to the extent specifically prescribed by this part.

ADMINISTRATIVE PROCEDURE

§ 3.511 Application for noncommercial educational FM broadcast stations. Each applicant for a construction permit for a new noncommercial educational FM broadcast station, change in facilities of any existing noncommercial educational FM broadcast station, or noncommercial educational FM broadcast station license or modification of license shall file with the Commission in Washington, D. C., two copies of applications and a like number of exhibits and other papers incorporated therein and made a part thereof. Only the original copy need be sworn to. If the application is for authority to construct or make changes in a noncommercial educational FM broadcast station, FCC Form 340 should be filed: for a noncommercial educational FM license, FCC Form 341 should be filed.

§ 3.512 Full disclosures. Each application shall contain full and complete disclosures with regard to all matters and things required to be disclosed by the application forms.

§ 3.513 Installation of apparatus. Applications for construction permits or modification thereof involving the installation of new transmitting apparatus

should be filed at least 60 days prior to the contemplated installation.

§ 3.514 Period of construction. Each construction permit will specify a maximum of 8 months from the date of granting-thereof as the time within which construction of the station shall be completed and the station ready for operation, unless otherwise determined by the Commission upon proper showing in any particular case. Each construction permit shall bear the date of the Commission's action authorizing the issuance of the construction permit. Where a conditional grant is ordered, the construction permit shall be dated as of the time when all conditions have been satisfied.

construction § 3.515 Forfeiture of construction permits; extension of time. (a) A construction permit shall be automatically forfeited if the station is not ready for operation within the time specified therein or within such further time as the Commission may have allowed for completion, and a notation of the forfeiture of any construction permit under this provision will be placed in the records of the Commission as of the expiration date.

(b) Any application for extension of time (FCC Form 701) within which to construct a station shall be filed at least 30 days prior to the expiration date of such permit if the facts supporting such application for extension are known to the applicant in time to permit such filing. In other cases such applications will be accepted upon a showing satisfactory to the Commission of sufficient reasons for filing within less than 30 days prior to the expiration date. Such applications will be granted upon a specific and detailed showing that the failure to complete was due to causes not under the control of the grantee, or upon a specific and detailed showing of other matters sufficient to justify the extension.

(c) If a construction permit has been allowed to expire for any reason, application may be made for a new permit on FCC Form 321 "Application for a Construction Permit to Replace Expired Per-

§ 3.516 Equipment tests. (a) During the process of construction of a noncommercial educational FM broadcast station, the permittee, after notifying the Commission and Engineer in Charge of the radio district in which the station is located, may without further authority of the Commission, conduct equipment tests for the purpose of such adjustments and measurements as may be necessary to assure compliance with the terms of the construction permit, the technical provisions of the application therefor, the rules and regulations, and the applicable engineering standards.

(b) The Commission may notify the permittee to conduct no tests or may cancel, suspend, or change the date for the beginning of equipment tests as and when such action may appear to be in the public interest, convenience, and

necessity.

(c) Equipment tests may be continued so long as the construction permit shall remain valid.

(d) Inspection of a station will ordinarily be required during the equipment test period and before the commencement of the program test. After construction and after adjustments and measurements have been completed to show compliance with the terms of the construction permit, the technical provisions of the application therefor, the rules and regulations and the applicable engineering standards, the permittee should notify the Engineer in Charge of the radio district in which the station is located that it is ready for inspection.

(e) The authorization for tests embodied in this section shall not be construed as constituting a license to operate but as a necessary part of

construction.

§ 3.517 Program tests. (a) Upon completion of construction of a noncommercial educational FM broadcast station in accordance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations and applicable engineering standards, and when an application for station license has been filed showing the station to be in satisfactory operating condition, the permittee may request authority to conduct program tests: Provided, That such request shall be filed with the Commission at least ten (10) days prior to the date on which it is desired to begin such operation and that the Engineer in Charge of the radio district in which the station is located is notified. (All data necessary to show compliance with the terms and conditions of the construction permit must be filed with the license application.)

(b) Program tests shall not commence until specific Commission au-The Commission thority is received. reserves the right to change the date of the beginning of such tests, or to suspend or revoke the authority for program tests as and when such action may appear to be in the public interest, con-

venience, and necessity.

(c) Unless sooner suspended or revoked program test authority continues valid during Commission consideration of the application for license and during this period further extension of the construction permit is not required. Program test authority shall be automatically terminated by final determination upon the application for station license.

(d) All operation under program test authority shall be in strict compliance with the rules governing noncommercial educational FM broadcast stations and in strict accordance with representations made in the application for license pursuant to which the tests were authorized.

(e) The grant of program test authority shall not be construed as approval by the Commission of the application for station license.

§ 3.518 Normal license period. (a) All noncommercial educational FM broadcast station licenses will be issued for a normal license period of three years. Licenses will be issued to expire at the hour of 3:00 a.m., e. s. t., in accordance with the following schedule and at threeyear intervals thereafter.

(1) For stations located in Delaware and Pennsylvania, August 1, 1957.

(2) For stations located in Maryland, District of Columbia, Virginia, West Virginia, October 1, 1957.

(3) For stations located in North Carolina, South Carolina, December 1, 1957.

(4) For stations located in Florida. Puerto Rico, and Virgin Islands, February 1, 1958.

(5) For stations located in Alabama and Georgia, April 1, 1958.

(6) For stations located in Arkansas. Louisiana, and Mississippi, June 1, 1958.

(7) For stations located in Tennessee, Kentucky, and Indiana, August 1, 1958.

(8) For stations located in Ohio and Michigan, October 1, 1958.
(9) For stations located in Illinois

and Wisconsin, December 1, 1958.

(10) For stations located in Iowa and Missouri, February 1, 1956.

(11) For stations located in Minnesota, North Dakota, South Dakota, Montana, and Colorado, April 1, 1956.

(12) For stations located in Kansas, Oklahoma, Nebraska, June 1, 1956.

(13) For stations located in Texas, August 1, 1956.

(14) For stations located in Wyoming. Nevada, Arizona, Utah, New Mexico, and Idaho, October 1, 1956.

(15) For stations located in California,

December 1, 1956.

(16) For stations located in Washington, Oregon, Alaska, and Hawaii, February 1, 1957.

(17) For stations located in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont, April 1, 1957.

(18) For stations located in New Jersey and New York, June 1, 1957.

None: Renewals of licenses will be granted for the period specified in the rule: Provided. houser, That if as a result of the transition from the previous schedule to the above cchedule the period for which a license is renewed is 6 months or less, the licensee may within the period 60 days to 30 days before the expiration date of such renewed license file, in lieu of renewal application (FCC Form 342), a written application under oath for the next renewal of license which shall consist of (1) a request that its license he renewed; (2) a statement that no substantial changes have been made in its operations or in its plans for future operations since its last renewal application, or if changes have been made or proposed, a statement specifying such changes; and (3) a statement that the applicant waives any claim to the use of any particular frequency or of the ether as against the regulatory power of the United States because of the previous use of the came, whether by license or otherwise. Upon review of such statements the Commission may grant a renewal of license for the full period provided for in the rule; or if the Commission requires additional information, it may require the filing of renewal application (FCC Form 342).

§ 3.519 License, simultaneous modification and renewal. When an application is granted by the Commission necessitating the issuance of a modified license less than 60 days prior to the expiration date of the license sought to be modified, and an application for renewal of said license is granted subsequent or prior thereto (but within 30 days of expiration of the present license) the modified license as well as the renewal license shall be issued to conform to the combined action of the Commission.

§ 3.520 Renewal of license. (a) Unless otherwise directed by the Commission, each application for renewal of a noncommercial educational FM broadcast station license shall be filed at least 90 days prior to the expiration date of the license sought to be renewed (FCC Form 342)

§ 3.521 [Reserved.]

- § 3.522 Repetitious applications. (a) Where an applicant has been afforded an opportunity to be heard with respect to a particular application for a new noncommercial educational FM broadcast station, or for change of existing service or facilities, and the Commission has, after hearing or default, denied the application or dismissed it with prejudice, the Commission will not consider another application for a station of the same class to serve in whole or in part the same area, by the same applicant or by his successor or assignee, or on behalf of or for the benefit of the original parties in interest, until after the lapse of 12 months from the effective date of the Commission's order.
- (b) Where an appeal has been taken from the action of the Commission in denying a particular application, another application for the same class of broadcast station and for the same area, in whole or in part, filed by the same applicant or by his successor or assignee, or on behalf or for the benefit of the original parties in interest, will not be considered until after the final disposition of such appeal.
- § 3.523 Assignment or transfer of control. (a) Application for consent to assignment of a noncommercial educational FM construction permit or license or for consent to voluntary transfer of control of a corporation holding a noncommercial education FM construction permit or license shall be filed with the Commission on FCC Form 314 (Assignment of License), FCC Form 315 (Transfer of Control) or FCC Form 316 (Short Form) at least 60 days prior to the contemplated effective date of assignment or transfer of control.

(b) Pro forma assignment or transfer applications shall be filed on FCC Form 316. Such cases are defined as cases in

which:

- (1) There is an assignment from an individual or individuals (including partnerships) to a corporation owned and controlled by such individuals or partnerships without any substantial change in their relative interests;
- (2) There is an assignment from a corporation to its individual stockholders without effecting any substantial change in the disposition of their interests:
- (3) There is an assignment or transfer by which certain partners or stockholders retire but no new ones are brought in, provided that the interest transferred is not a controlling one;
- (4) There is a corporate reorganization which involves no substantial change in the beneficial ownership of the corporation:

- (5) There is an involuntary transfer to an Executor, Administrator or other court appointed officer caused by death or legal disability except that this form does not cover assignments (or transfers) from the Executor, Administrator or other court appointed officers to the ultimate beneficiary.
- (6) There is an assignment or transfer from a corporation to a wholly owned subsidiary thereof or vice versa, or where there is an assignment from a corporation to a corporation owned or controlled by the assignor stockholders without substantial change in their interests.
- (7) There is an assignment of less than a controlling interest in a partnership.

EQUIPMENT

- § 3.550 Acceptability of broadcast transmitters for licensing. (a) In order to facilitate the filing of, and action on, applications for station authorizations, transmitters will be accepted for licensing by the Commission under one of the following conditions:
- (1) A transmitter may be typeaccepted upon the request of any manufacturer of transmitters built in quantity by following the type acceptance procedure set forth in Part 2 of this chapter, provided that the data and information submitted indicates that the transmitter meets the requirements of § 3.317. If accepted, such transmitter will be included on the Commission's "Radio Equipment List, Part B, Aural Broadcast Equipment" Applicants specifying transmitters included on such a list need not submit detailed descriptions and diagrams where the correct type number is specified, provided that the equipment proposed is identical with that accepted. Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field offices.
- (2) An application specifying a transmitter not included on the Radio Equipment List, Part B. may be accepted upon the request of a prospective licensee submitting with the application for construction permit a complete description of the transmitter, including the circuit diagram, listing of all tubes used, function of each, multiplication in each stage, plate current and voltage applied to each tube, a description of the oscillator circuit together with any devices installed for the purpose of frequency stabilization and the means of varying output power to compensate for power supply voltage variations. However, if this data has been filed with the Commission by a manufacturer in connection with a request for type acceptance, it need not be submitted with the application for construction permit but may be referred to as "on file" Measurement data for type acceptance made in accordance with subparagraph (1) of this paragraph shall be submitted with the license application.
- (3) A transmitter shown on an instrument of authorization by manufacturer and type number, or as a composite, and which was in use prior to June 30, 1955 may continue to be used by the licensee, his successors or assignees, provided

such transmitter continues to comply with the rules and regulations.

- (b) Additional rules with respect to withdrawal of type-acceptance, modification of type-accepted equipment and limitations on the findings upon which type acceptance is based are set forth in Part 2 of this chapter.
- § 3.551 Transmitter power (a) The standard power rating of the transmitter of a noncommercial educational FM broadcast station licensed for transmitter power output above 10 watts shall be in accordance with § 3.317.
- (b) The standard power rating of the transmitter of a noncommercial educational FM broadcast station licensed for transmitter power output of 10 watts or less shall be not less than the authorized operating power and not more than 10 watts.
- § 3.552. Frequency monitor (a) The licensee of each station licensed for transmitter power output above 10 watts shall have in operation, either at the transmitter or at, the place where the transmitter is controlled, a frequency monitor of a type approved by the Commission which shall be independent of the frequency control of the transmitter.

Note: Approved frequency monitors are included on the Commission's "Radio Equipment List, Part B, Aural Broadcast Equipment" Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field offices.

- (b) In the event that the frequency monitor becomes defective the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided*, That:
- (1) Appropriate entries shall be made in the operating log of the station showing the date and time the monitor was removed from and restored to service.
- (2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the monitor is found to be defective and immediately after the repaired or replacement instrument has been installed and is functioning properly.
- (3) The frequency of the station shall be compared with an external frequency source of known accuracy at sufficiently frequent intervals to insure that the frequency is maintained within the tolerance prescribed in § 3.568. An entry shall be made in the station log as to the method used and the results thereof.
- (c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the above-allowed period, informal request may be filed in accordance with § 1.332 (d) of this chapter with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.
- (d) The licensee of each non-commercial educational FM broadcast station licensed for transmitter power output of 10 watts or less shall provide for the measurement of the station frequency by a means independent of the frequency

control of the transmitter. The station frequency shall be measured (1) when the transmitter is initially installed, (2) at any time the frequency determining elements are changed, and (3) at any time the licensee may have reason to believe the frequency has shifted beyond the tolerance specified by the Commission's rules.

§ 3.553 Modulation monitor The licensee of each station licensed for transmitter power output above 10 watts shall have in operation, either at the transmitter or at the place where the transmitter is controlled, a modulation monitor of a type approved by the Commission.

Note: Approved modulation monitors are included on the Commission's "Radio Equipment List, Part B, Aural Broadcast Equip-Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field

- (b) In the event that the modulation monitor becomes defective the station may be operated without the monitor pending its repair or replacement for a period not in excess of 60 days: Provided, That:
- (1) Appropriate entries shall be made in the operating log of the station showing the date and time the monitor was removed from and restored to service.
- (2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the monitor is found to be defective and immediately after the repaired or replacement monitor has been installed and is functioning properly.
- (3) During the period when the station is operated without the modulation monitor the licensee shall provide other suitable means for insuring that the modulation is maintained within the tolerance prescribed in § 3.568.
- (c) If conditions beyond the control of the licensee prevent the restoration of the monitor to service within the above allowed period, informal request may be filed in accordance with § 1.332 (d) of this chapter with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.
- (d) The licensee of each non-commercial educational FM broadcast station licensed for transmitter power output of 10 watts or less shall provide a percentage modulation indicator or a calibrated program level meter from which a satisfactory indication of the percentage of modulation of the transmitter can be determined.
- Transmitter performance. (a) The transmitter proper and associated transmitting equipment of each noncommercial educational FM broadcast station licensed for transmitter power output above 10 watts shall be designed, constructed and operated in accordance with § 3.317.
- (b) The transmitter proper and associated transmitting equipment of each noncommercial educational FM broadcast station licensed for transmitter power output of 10 watts or less, al-

though not required to meet all requirements of § 3.317 shall be constructed with safety features in accordance with the specifications of article 810 of the current National Electrical Code as approved by the American Standards Association and shall be so operated, tuned, and adjusted that emissions are not radiated outside the authorized band which cause or which are capable of causing interference to the communications of other stations. The audio distortion, audio frequency range, carrier hum, noise level, and other essential phases of the opera-tion which control the external effects, shall at all times be capable of providing satisfactory-broadcast service. Studio equipment properly covered by an underwriter's certificate will be considered as satisfying safety requirements.

§ 3.555 Auxiliary transmitter. Upon showing that a need exists for the use of an auxiliary transmitter in addition to the regular transmitter of a broadcast station, a license therefor may be issued: Provided, That:

(a) An auxiliary transmitter may be installed either at the same location as the main transmitter or at another lo-

(b) A licensed operator shall be in control whenever an auxiliary transmitter is placed in operation.

(c) The auxiliary transmitter shall be maintained so that it may be placed into immediate operation at any time for the following purposes:

- (1) The transmission of the regular programs upon the failure of the main transmitter.
- (2) The transmission of regular programs during maintenance or modification work on the main transmitter, necessitating discontinuance of its operation for a period not to exceed 5 days. (This includes the equipment changes which may be made without authority as set forth elsewhere in the rules and regulations or as authorized by the Commission by letter or by construction permit. Where such operation is required for periods in excess of 5 days, request therefor shall be in accordance with § 1.324 of this chapter.)

(3) Upon request by a duly authorized representative of the Commission.

- (d) The auxiliary transmitter shall be tested at least once each week to determine that it is in proper operating condition and that it is adjusted to the proper frequency, except that in case of operation in accordance with paragraph (c) of this section during any week, the test in that week may be omitted provided the operation under paragraph (c) is satisfactory. A record shall be kept of the time and result of each test. Such records shall be retained for a period of two years.
- (e) The auxiliary transmitter shall be equipped with satisfactory control equipment which will enable the maintenance of the frequency emitted by the station within the limits prescribed by the regulations in this part.
- (f) The operating power of an auxiliary transmitter may be less than the authorized power of the main transmitter, but in no event shall it be greater than such power.

§ 3.556 Alternate main transmitters. The licensee of a noncommercial educational FM broadcast station may be licensed for alternate main transmitters provided that a technical need for such alternate transmitters is shown (such as licensees maintaining 24-hour schedule and needing alternate operation for maintenance, or where developmental work requires alternate operation) and that the following conditions are met:

(a) Both transmitters are located at the same place.

(b) Both transmitters shall have the same power rating.

- (c) Both transmitters shall meet the requirements of § 3.554.
- § 3.557 Changes in equipment and antenna system. Licenses of noncommercial educational FM broadcast stations shall observe the following provisions with regard to changes in equipment and antenna system:
- (a) No changes in equipment shall be
- (1) That would result in the emission of signals outside of the authorized channel.
- (2) That would result in the external performance of the transmitter being in disagreement with § 3.554.
- (b) Specific authority, upon filing formal application (FCC Form 340) therefor, is required for a change in service area or for any of the following changes:
- (1) Changes involving an increase or decrease in the power rating of the transmitter.
- (2) A replacement of the transmitter as a whole.
- (3) Change in the location of the transmitting antenna.
- (4) Change in antenna system, including transmission line.
- (5) Change in location of main studio. if it is proposed to move the main studio to a different city from that specified in the license.
- (6) Change in the power delivered to the antenna.
- (7) Change in frequency control and/ or modulation system.
- (8) Change in the authorized transmitter remote control point(s)
- (c) Other changes, except as above provided for in this section, may be made at any time without the authority of the Commission, provided that the Commission shall be promptly notified thereof and such changes shall be shown in the next application for renewal of license.
- § 3.558 Indicating instruments. (a) Each noncommercial FM broadcast station licensed for transmitter power above 10 watts shall be equipped with indicating instruments, which conform with the specifications set forth in § 3.320 for measuring the direct plate voltage and current of the last radio stage and the transmission line radio frequency current, voltage, or power.
- (b) In the event that any one of these indicating instruments becomes defective when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days: Provided, That:

(1) Appropriate entries shall be made in the operating log of the station showing the date and time the meter was removed from and restored to service.

(2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the instrument is found to be defective and immediately after the repaired or replaced instrument has been installed and functioning properly.

(3) If the defective instrument is a plate voltmeter or plate ammeter in the last radio stage, the operating power shall be maintained by means of the radio frequency transmission line meter.

(c) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, informal request may be filed in accordance with § 1.332 (d) of this chapter with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

TECHNICAL OPERATION

§ 3.561 Operating schedule. Non-commercial educational FM broadcast stations are not required to operate on a regular schedule and no minimum number of hours of operation is specified; but the hours of actual operation during a license period shall be taken into consideration in considering the renewal of noncommercial educational FM broadcast licenses wherever it appears that the channels available for such stations are insufficient to meet the demand.

§ 3.562 Experimental operation. The period between 1:00 a.m., and 6:00 a.m., local-standard time, may be used for experimental purposes in testing and maintaining apparatus by the licensee of any noncommercial educational FM broadcast station on its assigned frequency and not in excess of its authorized power, without specific authorization from the Commission.

§ 3.563 Station inspection. The licensee of any noncommercial educational FM broadcast station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

§ 3.564 Station and operator licenses; posting of. (a) The station license and any other instrument of station authorization shall be posted in a conspicuous place and in such manner that all terms are visible, at the place the licensee considers to be the principal control point of the transmitter. At all other control points listed on the station authorization, a photocopy of the station license and other instruments of station authorization shall be posted.

(b) The original operator license, or FCC Form 759, of each station operator shall be posted at the place where he is on duty as an operator.

§ 3.565 Operator requirements. (a) One or more radio operators holding a valid radiotelephone first-class operator license, except as provided in this section, shall be in actual charge of the transmitting apparatus and shall be on

duty either at the transmitter location or remote control point.

(b) A station which is authorized with transmitter power output of 10 kilowatts or less may be operated by persons holding commercial radio operator license of any class, except an aircraft radiotelephone operator authorization or a temporary limited radiotelegraph second-class operator license, when the equipment is so designed that the stability of the frequency is maintained by the transmitter itself within the limits of tolerance specified, and none of the operations, except those specified in subparagraphs (1) (2) and (3) of this paragraph, necessary to be performed during the course of normal operation may cause off-frequency operation or result in any unauthorized radiation. Adjustments of transmitting equipment by such operators, except when under the immediate supervision of radiotelephone first-class operator, shall be limited to the following:

(1) Those necessary to commence or terminate transmitter emissions as a routine matter.

(2) Those external adjustments that may be required as a result of variations of primary power supply.

(3) Those external adjustments which may be necessary to insure modulation within the limits required.

Should the transmitting apparatus be observed to be operating in a manner inconsistent with the station's instrument of authorization and none of the above adjustments are effective in bringing into proper operation, a person holding other than a radiotelephone first-class operator license and not acting under the immediate supervision of a radiotelephone first-class operator, shall be required to terminate the station's emissions.

(c) The licensee of a station which is operated by one or more operators holding other than a radiotelephone first-class operator license shall have one or more operators holding a radiotelephone first-class operator license in regular full-time employment at the station, whose primary duties shall be to effect and insure the proper functioning of the transmitting equipment. In the event that the licensee also operates a standard broadcast station in the same community, a regular full-time radiotelephone first-class operator or operators employed in connection with the FM broadcast station may concurrently be employed to satisfy the requirements of § 3.93 (c) Provided, That the duties of such operator or operators concerning the standard broadcast transmitting equipment shall in nowise interfere with the proper performance of his, duties with respect to the FM broadcast transmitter: Except, that (1) if the transmitter power output is in excess of 10 watts but not greater than 1 kw, an operator holding radiotelephone secondclass operator license may be on duty and perform the functions required of the radiotelephone first-class operator, or (2) if the transmitter power output is 10 watts or less, a radiotelephone second-class or radiotelegraph first- or second-class operator may be on duty and perform the functions of the radiotelephone first-class operator but need not be in regular full-time employment at the station.

(d) The licensed operator on duty and in charge of a non-commercial educational FM broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another radio station or stations in accordance with the class of operator's license which he holds and the rules and regulations governing such other stations: Provided, however, That such duties shall in nowise interfere with the proper operation of the FM broadcast transmitter.

§ 3.566 Facsimile broadcasting and multiplex transmission. (a) Noncommercial educational FM broadcast stations may transmit simplex facsimile in accordance with transmission standards set forth in § 3.318 during periods not devoted to FM aural' broadcasting. Such transmissions may not exceed one hour during the period between 7 a. m. and midnight (no limit is placed upon the hours between midnight and 7 a. m.) The Commission shall be notified by the licensee of the noncommercial educational FM broadcast station of its intent to transmit such facsimile.

(b) Noncommercial educational FM broadcast stations may, upon securing authorization from the Commission, transmit multiplex facsimile in accordance with transmission standards set forth in § 3.318: Provided, That the transmission of such facsimile does not reduce the quality of the aural program simultaneously transmitted by the Iicensee below that required by the FM Technical Standards in Subpart B of this part and that no degradation of such aurál programs will result from such facsimile transmissions when received on FM receivers not equipped with filters or other additional equipment.

§ 3.567 Operating power; determination and maintenance of. (a) The operating power of each station shall be determined by the indirect method. This is the product of the plate voltage (E_p) and the plate current (I_p) of the last radio stage, and an efficiency factor, F; that is:

Operating power= $E_n \times I_n \times F$

The efficiency factor, F, shall be established by the transmitter manufacturer for each type of transmitter for which Commission approval is requested, and shall be specified in the instruction books supplied to the customer with each transmitter. In the case of composite equipment the factor, F shall be furnished to the Commission along with a statement of the basis used in determining such factor.

(b) The operating power of each station licensed for transmitter power output above 10 watts shall be maintained as near as practicable to the authorized power, and shall not exceed the limits of 5 percent above and 10 percent below the authorized power, except that in an emergency when it becomes impossible to operate with the authorized power, the station may be operated with reduced power for a period not to exceed 10 days

provided the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified immediately after the emergency develops and also upon the resumption of normal operating power. With respect to each station licensed for transmitter power output of 10 watts or less, the power at which the station is operated may be less than the licensed power, but shall in no event be more than 5 percent above the licensed power. The transmitter of each station shall be so maintained as to be capable of operation at a maximum licensed power.

§ 3.568 Modulation. The percentage of modulation of all stations shall be maintained as high as possible consistent with good quality of transmission and good broadcast practice and in no case less than 85 percent or more than 100 percent on peaks of frequent recurrence during any selection which normally is transmitted at the highest level of the program under consideration.

§ 3.569 Frequency tolerance. (a) The center frequency of each noncommercial educational FM broadcast station licensed for transmitter power output of 10 watts or less shall be maintained within 3,000 cycles of the assigned center frequency.

(b) The center frequency of each non-commercial educational FM broadcast station licensed for transmitter power output above 10 watts shall be maintained within 2,000 cycles of the assigned center frequency.

§ 3.570. Antenna structure, marking and lighting. Where an antenna structure(s) is required to be painted or lighted see § 17.37, Inspection of tower lights and associated control equipment; § 17.39, Cleaning and repainting; § 17.40, Time when lights shall be exhibited; § 17.41, Spare lamps; and § 17.42, Lighting equipment; of Part 17 of this chapter (Construction, Marking and Lighting of Antenna Structures).

§ 3.571 Discontinuance of operation. The licensee of each station shall notify the Commission in Washington, D. C., and the Engineer in Charge of the radio district in which the station is located of permanent discontinuance of operation at least two days before operation is discontinued. The licensee shall, in addition, immediately forward the station license and other instruments of authorization to the Washington, D. C., office of the Commission for cancellation.

§ 3.572 Remote control operation. A station which is authorized with transmitter power output of 10 kilowatts or less may, upon prior authorization from the Commission, be operated by remote control at the point(s) which shall be specified in the station license. An application for authorization to operate by remote control may be made as a part of an application for construction permit or license or modification thereof by specifying the proposed remote control point(s) Operation by remote control shall be subject to the following conditions:

(a) The equipment at the operating and transmitting positions shall be so

installed and protected that it is not accessible to or capable of operation by persons other than those duly authorized by the licensee.

(b) The control circuits from the operating position to the transmitter shall provide positive on and off control and shall be such that open circuits, short circuits, grounds or other line faults will not actuate the transmitter and any fault causing loss of such control will automatically place the transmitter in an inoperative condition.

(c) Control and monitoring equipment shall be installed so as to allow the licensed operator either at the remote control point or at the transmitter to perform all of the functions in a manner required by the Commission's rules and Standards: Except, that in the case of a station licensed for a transmitter output power of 10 watts or less the monitoring equipment shall be installed at the remote control point so as to continuously monitor the actual FM carner and audibly indicate the nature and quality of the program being broadcast.

OTHER OPERATING REQUIREMENTS

§ 3.581 Logs. The licensee or permittee of each noncommercial educational FM broadcast station shall maintain program and operating logs and shall require entries to be made as follows:

(a) In the program log:

(1) An entry of the time each station identification announcement (call let-

ters and location) is made.

- (2) An entry briefly describing each program broadcast, such as "music," "drama," "speech," etc., together with the name or title thereof, with the time of the beginning and ending of the complete program. If a mechanical record is used, the entry shall show the exact nature thereof, such as "record," "transcription," etc., and the time it is announced. If the program is of network origin, its source shall be indicated. If the broadcast is under the auspices of an institution or organization other than the licensee, its name shall be noted.
 - (b) In the operating log:
- (1) An entry of the time the station begins to supply power to the antenna, and the time it stops.
- (2) An entry of the time the program service begins and ends.
- (3) An entry of each interruption to the carrier wave, its cause and duration.
- (4) For each station licensed for transmitter power output above 10 watts, an entry of the following each 30 minutes:
- (i) Operating constants of last radio stage (total plate current and plate voltage)
- (ii) Radio frequency transmission line meter reading.
 - (iii) Frequency monitor reading.
- (5) A log must be kept of all operation during the experimental period. If the entries required above are not applicable thereto, then the entries shall be made so as to fully describe the operation.
- (c) Where an antenna structure(s) is required to be illuminated see § 17.38, Recording of tower light inspections in the station record, of Part 17 of this

chapter (Construction, Marking and Lighting of Antenna Structures)

§ 3.582 Logs; retention of. Logs of noncommercial, educational FM broadcast stations shall be retained by the licensee or permittee for a period of two years: Provided, however That logs involving communications incident to a disaster or which include communications incident to or involved in an investigation by the Commission and concerning which the licensee or permittee has been notified, shall be retained by the licensee or permittee until he is specifically authorized in writing by the Commission to destroy them: Provided, further, That logs incident to or involved in any claim or complaint of which the licensee or permittee has no-tice shall be retained by the licensee or permittee until such claim or complaint has been fully satisfied or until the same has been barred by statute limiting the time for the filing of suits upon such claims.

§ 3.583 Logs; by whom kept. Each log shall be kept by the person or persons competent to do so, having actual knowledge of the facts required, who shall sign the log when starting duty and again when going off duty. The logs shall be made available upon request by an authorized representative of the Commission.

§ 3.584 Log form. The log shall be kept in an orderly manner, in suitable form, and in such detail that the data required for the particular class of station concerned are readily available. Key letters or abbreviations may be used if proper meaning or explanation is contained elsewhere in the log.

§ 3.585 Correction of logs. No log or portion thereof shall be erased, obliterated, or willfully destroyed within the period of retention provided by the rules. Any necessary correction may be made only by the person originating the entry who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction.

§ 3.586 Rough logs. Rough logs may be transcribed into condensed form, but in such case the original log or memoranda and all portions thereof shall be preserved and made a part of the complete log.

§ 3.587 Station identification. (a) A licensee of a noncommercial educational FM broadcast station shall make at least the following station identification announcements (call letters and location) (1) at the beginning and ending of each time of operation; and (2) within 2 minutes of each hour and each half hour

during operation: Provided,

(b) Such identification announcement need not be made on the hour or half hour when to make such announcement would interrupt a single continuous program of longer duration than 30 minutes. In such cases the identification announcement shall be made at the baginning of the program, at the first interruption of the continuity, and at the conclusion of the program.

(c) In making the identification announcement, the call letters shall be

given only on the channel of the station identified thereby.

§ 3.588 Mechanical records. Each program broadcast, except when designed specifically for in-school listening, which consists in whole or in part of one or more mechanical reproductions shall be announced in the manner and to the extent set out below.

(a) Each such program of longer duration than 30 minutes, consisting in whole or in part of one or more mechanical reproductions, shall be identified by appropriate announcement at the beginning of the program, at each 30-minute interval and at the conclusion of the program: Provided, however That the identifying announcement at each 30-minute interval is not required in case of a mechanical reproduction consisting of a continuous uninterrupted speech, play, religious service, symphony concert, or operatic production of longer than 30 minutes.

- (b) Each such program of a longer duration than 5 minutes and not in excess of 30 minutes, consisting in whole or in part of one or more mechanical reproductions, shall be identified by an appropriate announcement at the beginning and end of the program.
- (c) Each such program of 5 minutes or less, consisting in whole or in part of mechanical reproductions, shall be identified by appropriate announcement immediately preceding the use thereof:

 Provided, however That each such program of one minute or less need not be announced as such.
- (d) In case a mechanical reproduction is used for background music, sound effects, station identification, program identification (theme music of short duration) or identification of the sponsorship of the program proper, no announcement of the mechanical reproduction is required.
- (e) The exact form of identifying announcement is not prescribed, but the language shall be clear and in terms commonly used and understood. A licensee shall not attempt affirmatively to create the impression that any program being broadcast by mechanical reproduction consists of live talent.

§ 3.589 [Reserved.]

§ 3.590 Broadcasts by candidates for public office—(a) Definitions. A "legally qualified candidate" means any person who has publicly announced that he is a candidate for nomination by a convention of a political party or for nomination or election in a primary, special, or general election, municipal, county, state or national, and who meets the qualifications prescribed by the applicable laws to hold the office for which he is a candidate, so that he may be voted for by the electorate directly or by means of delegates or electors, and who—

(1) Has qualified for a place on the ballot or

(2) Is eligible under the applicable law to be voted for by sticker, by writing in his name on the ballot, or other method and (i) has been duly nominated by a political party which is commonly known and regarded as such, or (ii) makes a substantial showing that he is a

bona fide candidate for nomination or office, as the case may be.

(b) General requirements. No station licensee is required to permit the use of its facilities by any legally qualified candidate for public office, but if any licensee shall permit any such candidate to use its facilities, it shall afford equal opportunities to all other such candidates for that office to use such facilities: Provided, That such licensee shall have no power of censorship over the material broadcast by any such candidate.

(c) Practices. No licensee shall make any discrimination in practices, regulations, facilities, or services for or in connection with the service rendered pursuant to this part, or make or give any preference to any candidate for public office or subject any such candidate to any prejudice or disadvantage; nor shall any licensee make any contract or other agreement which shall have the effect of permitting any legally qualified candidate for any public office to broadcast to the exclusion of other legally qualified candidates for the same public office.

(d) Records; inspection. Every licensee shall keep and permit public inspection of a complete record of all requests for broadcast time made by or on behalf of candidates for public office, together with an appropriate notation showing the disposition made by the licensee of such requests. Such records shall be retained for a period of two years.

§ 3.591 Rebroadcast. (a) The term "rebroadcast" means reception by radio of the program of a radio station, and the simultaneous or subsequent retransmission of such program by a broadcast station. The broadcasting of a program relayed by a remote pick-up broadcast station or studio transmitter link is not considered a rebroadcast. In case a program is transmitted from its point of origin to a broadcast station entirely by telephone facilities in which a section of such transmission is by radio, the broadcasting of this program is not considered a rebroadcast.

Note: As used in this section, program includes any complete program or part thereof.

(b) The licensee of a noncommercial educational FM broadcast station may, without further authority of the Commission, rebroadcast the program of a United States standard, FM, noncommercial educational, or international broadcast station, provided the Commission is notified of the call letters of each station rebroadcast and the licensee certifies that express authority has been received from the licensee of the station originating the program.

Note 1. The notice and certification of consent shall be given within 3 days of any single rebroadcast, but in case of the regular practice of rebroadcasting certain programs several times during a license period, notice and certification of consent shall be given for the ensuing license period with the application for renewal of license, or at the beginning of such rebroadcast practice if begun during a license period.

Note 2: See § 3.503 (c).

(c) No licensee of a noncommercial educational FM broadcast station shall rebroadcast the program of any United States radio station not designated in paragraph (b) of this section without written authority having first been obtained from the Commission upon application (informal) accompanied by written consent or certification of consent of the licensee of the station originating the program.

Note: By Order No. 82, dated and effective June 24, 1941, until further order of the Commission, § 3.591 (c) is suspended only insofar as it requires prior written authority of the Commission for the rebroadcasting of programs originated for the express purpose by U. S. Government radio stations.

SUBPART D-IRESERVEDI

SUBPART E—TELEVISION BROADCAST STATIONS

GENERAL.

§ 3.601 Scope of subpart. This subpart contains the rules and regulations (including engineering standards) governing television broadcast stations, in cluding noncommercial educational television broadcast stations, in the United States, its Territories and possessions.

§ 3.602 Other pertinent rules. Other pertinent provisions of the Commission's rules and regulations relating to the television broadcast service are included in the following parts of this chapter:

Part 1—Practice and procedure.
Part 2—Frequency allocations and radio treaty matters; general rules and regulations.
Part 4—Experimental and auxiliary broadcast services.

Part 17—Construction, marking, and lighting of antenna towers and/or their supporting structures.

§ 3.603 Numerical designation of television channels.

(a)

	Frequency		Frequency
Channel No.	band	Channel No.	band
	(mega-	Ondition 1101	nicka-
	cycles)		oyeles)
2:	54-60	43	644-050
8	60-66	44	050-050
4	66-72	45	650-662
5	76-82	46	662-669
3	82-83	47	668-074
7	174-180	43	674-680
3	180-186	49	680-686
)	186-192	60	680-692
0	192-198	51	692-693
1	198-204	52	693-701
i2	201-210	63	704-710
13	210-216	54	710-710
14	470-476	55	710-722
15	476-482	50	722-728
16	482-483	57	728-731
17	483-491	58	731-740
8	494-500	59	740-740
9	500-506	60	740-752
0	506-512	. 61	762-769
1	512-518	62	768-761
2	518-524	63	764-770
3	524-530	01	770-770
4	530-536	65	770-782
5	536-542	66	782-789
<u>6</u>	542-548	67	788-791
7	548-554	63	794-800
8	554-560 560-566	69	800-800 808-812
9	566-572	70	812-818
30	572-578	71	818-821
31 32	578-534	72	824-830
	584-590	74	830-830
3 34	590-696	75	830-842
35	596-602	76	842-849
36	602-603	77	848-861
37	603-614	78	874-860
38	614-620	79	860-860
39	620-626	80	800-872
0	626-632	81	872-878
11	632-638	82	878-484
i2	638-644	83	884-890

(b) In the Territories of Alaska and Hawaii the frequency bands 76–82 Mc and 82–88 Mc are allocated for non-Broadcast use. These frequency bands (Channels 5 and 6) will not be assigned in the Territories of Alaska or Hawaii for use by television broadcast stations.

CHANNEL UTILIZATION

§ 3.606 Table of assignments—(a) General. The following table of assignments contains the channels assigned to the listed communities in the United States, its Territories, and possessions. Channels designated with an asterisk are assigned for use by noncommercial educational broadcast stations only. A staton on a channel identified by a plus or minus mark is required to operate with its carrier frequencies offset 10 kc above or below, respectively, the normal carrier frequencies.

(b) Table of assignments.

(D) I wore of		
			ıannel
Alaba	ima:		No.
'An	dalusia	*2-	- 29
			70+
			•56
Au	nara		
Bes	semer	_ 6- *10- 13- 42+	54
Bir	mingham	<u> 6 </u>	- 48
Bre	wton	·	23 +÷
Cla	nton		14
Cui			60+
Dec	atur		23
De	mopolis	**========	18
Dot	han	9+	19—
Ent	ernrise	9+	40+
72111	onlo		
Eu	aua		44
1,10	rence		41
For	rt Payne		19
Gae	isden	15+	21+
Gre	enville		40
Gu	ntereville		49 — 40 —
TTee			40-
nu	ursame		31+
Jas	per		17
Mo	bile	5+,10+ *42 12, 20, *26+	2. 48-1-
Mo	ntgomery _	12, 20, *26±	32
7.711	nford		\$ 77
~	111	~	• '(-
Opt	:шка	8-	22—
			. 204
She			
S⊽I	acauga		24-
ารา	ladeoa		6A
The	macouille		7 <u>-</u>
7110	missyme -		27 —
TIC)y		38
Tus	caloosa	45	, 51—
Tu	skegee	45	16-
Un	iversity		974+
A1120	114.		
Ajc	<u>'</u>		14-
Bis	bee		15
Cas	a Grande .		18 25
Cli	ton		25-
Coc	lidge		30+
Doc			
			3—
Elo	y		24
Fla	gstaff	8	. 13
Glo	be		34+
Hol	brook		14
Kin	amon		6-
350	5au		-0-
Me	524		12-
VIIS	.mı		28+
Mo	renci		31
_ Nos	zales		17—
Pho	neni z	3+ 5-,*8+	10-
Dro	roott		10-
210	30066 aaaaa		10
Sai	tord		21
Tuc	:son	4- *6+ 9-	, 13—
Wil	liams		25
Wir			
V17	ma	11-	10 1
		11-	, 104
Arkar	isas:		
Ark	adelphia 📖		34+
Bat	esville		30 -
	iton		40
		64+	
- Diy	ATTENTIC SEE	64+	14
Car	nden		อบ
Cor	way		62
El I	Dorađo	10—	26
	NT- 000	10	_

	(The man of
Arkansas—Continued	Channel No.
Fayetteville	*13-, 41-
Forrest City5-	22+ •16, 23, 39
Harrison	24
Helena	
Hot Springs	
Jonesboro •2—, 4, 11	8, 39+
Little Rock •2—, 4, 11 Magnolia	1+, 17-, 23+ 28+
Malvern	48
Morrilton	
Newport Paragould	28 58—
Pine Bluff	7—,30
Russellville	
Springdale	
Stuttgart	14+
California: Alturas	9
Bakersfield	10 29
Brawley	25+
Chico	
Delano	37+
El Centro	16, 56
Fresno 12+ •18	3-,24, 47, 53
Hanford Los Angeles. 2, 4, 5, 7, 9, 11, 1	21
Madera	3,22, *28,34 30+
Merced	34—, 66
Modesto	14+, 58
Monterey. (See Salinas.) Napa	63
Oakland. (See San Francisco Oxnard	:o.)
OxnardPalm Springs	32 14
Petaluma	68
Pittsburg	16
Port Chicago Porterville	70 FS
Red Bluff Redding Riverside Sacramento 3, °6, Salinas-Monterey San Bernardino San Buenayentura	7
Sacramento 3. •6.	40, 46 . 10. 40 — . 46+
Salinas-Monterey	8+, 35
San Bernardino	18, •24—, 30 38—
San Diego 8, 10, *154, 21	27. 33. 39
San Francisco-Oakland	2+4-,5+
7-, *9-, 20-, 26-, San Jose 11-	, 32+, 38, 44- L. 48.*54. 60
San Lills Obisbo	Ŭ++
Santa Barbara Santa Cruz	. 3-,20,26
Santa Cruz	80
Santa Paula	
Santa Rosa13+	50 - 36 *42 64
Tulare	-,00, 12,01
Uklah	18
Visalia Watsonville	
Yreka City	11
Yuba CityColorado:	52—
Alamosa Boulder	19÷
Boulder	•12,22+
Canon City11,1	
Craig	19
Craig	24-
Duranco	7, 9—, 20, 20+ 6+, 15
Fort Colling	34+
Fort Morgan	16+
Grand Junction	
La Junta	
Lamar	18-
Leadville	14+ 32
Loveland	
Montrose	10÷.18
Pueblo 3-, 5,	•8, 23-, 34-
Salida	25 25—
~~~	

Channel Colorado—Continued No.
Trinidad21-
Waltenburg 30—
Connecticut: Bridgeport43-49- •71
Hartford 3+, 18—, *24 Meriden 65—
Meriden 65— New Britain 39+
New Haven 8+ 59+ New London 26+ 81
Norwalk. (See Stamford.)
New London 26+ 81  Norwalk. (See Stamford.)  Norwich 57+ *63-  Stamford-Norwalk 27
Delement 53
Dover
District of Columbia:
Washington 4—
Piorius:
Belle Glade 27+ Bradenton 28-
Clearwater 32+,50
Daytona Beach 2-,53 \ Do Land 44+
Fort Landerdale 17— 30
Fort Pierce 19
Gainesville *5-, 20+
Fort Myero 11+ Fort Pierce 19 Gainesville 5-, 20+ Jackconville 4+ •7, 12- 30+ 36- Key West 14+, 20
Lake City 33 + Lakeland 16+, 22 +
Lake Wales 14
Leesburg 25— Marianna 17+
Marianna 17+ Melbourne 37- Miami 22, 4, 7- 10+ 23- 33
Ocala 15+
Orlando 6-,9,18,*24- 47
Panama City7+ *30, 36+
Pensacola 3-, 15- *21, 46
St. Augustine 25+
Miami
Sarasota 34+
Tampa-St. Petersburg. *3, 8-, 13- 38
West Palm Beach 5, 12, *15, 21+ Georgia:
Albany 10.25
Americus
Atlanta 2, 5— 11+, *30, 36
Augusta 6+ 12+ Bainbridge 35- Brunswick 28+ 34-
Brunswick 28+ 34- Calro 45+
Carrollton 33
Cartersville 63— Cedartown 53—
Columbus 4, 28, *34
Cordele 43 Dalton 25+
Douglas 32— Dublin 15
Elberton 24-f-
Fitzgerald 53 + Fort Valley 18+
Gainesville 52
Griffin 33+ La Grange 50
Macon
Marietta 57± Milledgovillo 51+
Moultrie 48- Newman 61+
Rome 9,59 Savannah 3+ *9-,11
Savannah 3+ *9-,11
Swainsboro 20-
Thomasville6,27 Tifton14_
Tocco3 35
Valdesta 37+ Vidalia 26
Warner Robins 13+ Waycross 16
•

## **RULES AND REGULATIONS**

	Channel	Channel	Channel
Ide	ho: No.	Indiana—Continued No.	Kentucky—Continued No.
	Blackfoot 33	Indiana—Continued No. Shelbyville 58+	Frankfort43-
3	Boise 2, *4+ 7	South Bend 34- *40+ 46	Glasgow 28+
1	Burley 15-	Tell City 31	Harlan 734
(	Caldwell9-	Terre Haute 10, *57+ 63-, 73+	Hazard 19-
(	Coeur d'Alene 12-	Vincennes 44+	Hopkinsville 20
1	Emmett 26-	Washington	Lexington 184.2764.704
(	Gooding 23	Iowa:	Louisville 3-, 11+, *15, 21-, 41-, 51-
	daho Falls 3,8+	Algona 37+	Madisonville 26
J	ferome 17	Ames 5, 25—	Mayfield 63
	Kellogg 33-	Atlantic45—	Maysville 24+
	Lewiston 3—	Boone 19-	Middlesborough 57, 63+
	Moscow	Burlington 32- 38+	Murray 33-
	Nampa6, 12+	Carroll 39	Owensboro
	Payette14+	Cedar Rapids 2, 9- 20-, *26+	Paducah6+,43,72
	Pocatello6-, 10	Centerville 31-	Pikeville 14-
	Preston 41	Charles City 18—	Princeton 45-
	Rexburg 27+	Cherokee14	Richmond 60
	Rupert 21	Clinton64	Somerset 29-
	Sandpoint9+	Creston 43	Winchester 37+
	rwin Falls 11, 13—	Davenport-Rock Island-Moline, Ill 4+,	
	Wallace 27-	6+ *30+ 36+ 42-	Louisiana:
	Weiser 20-	Decorah 44+	Abbeville 27+
	nois:	Des Moines 8- *11+ 13- 17+ 23-	Alexandria 5,62+,74
			Bastrop58+
	Alton 48	Dubuque 56+ 62- Estherville 24+	Baton Rouge 2, 28, *84, 40-
	Aurora 16 Belleville 54+	Fairfield 54	Bogalusa 69, 78
		Fort Dodge21	Crowley 21+
	Bloomington		De Ridder 14
	Cairo 24—	Fort Madison/50+	Eunice 64-
	Carbondale34, *61_	Grinnell 71	Franklin 40+
•	Centralia 32+, 59 }	Iowa City*12+ 24-	Hammond 57
•	Champaign-Urbana 3+	Keokuk 44-	Houma 80+
	*12— 21, 27, 33 Chicago 2—	Knoxville 33-	Jackson 10-
•	Chicago 2—	Marshalltown 49	Jennings 48
	5, 7, 9 + *11, 20, 26, 32, 38, 44	Mason City 3+ 35-	Lafayette 10, 38-, 67-
	Danville 24	Muscatine 58	Lake Charles 7-, *19, 25, 60+
:	Decatur 17, 23+	Newton65+	Minden80
:	De Kalb *67	Oelwein 28	Monroe8+, *13, 43+
1	Dixon 47+	Oskaloosa 52+	Morgan City 36-
;	Elgin 28+	Ottumwa 15+ 63	Natchitoches 17-
1	Freeport 23	Red Oak 32+	New Iberia 15-
	Galesburg 40-	Shenandoah 20+	New Orleans 4-1-
	Harrisburg 22	Sioux City 4- 9, *30, 36-	6+, *8, 20-, 26, 32+, 61
	Jacksonville 29	Spencer 42+	Oakdale
	Joliet 48+	Storm Lake 34+	Opelousas 58
	Kankakee 14	Waterloo 7+,16-,*22- 46+	Ruston 20
	Kewanee 60-	Webster City 27	Shreveport 3-, 12
	La Salle 35	Kansas:	Thibodaux24
	Lincoln 53+	Abilene 31+	Winnfield 22-
	Macomb 61+	Arkansas. City 49	
	Marion 40	Atchison60+	Maine:
	Mattoon 46-	Chanute 50-	Auburn 23+
	Moline. (See Davenport, Iowa.)	Coffeyville 33—	Augusta10-,20+
	Mt. Vernon 38-	Colby 22-	Bangor 2-,5+,*10-
. ;	Olney 16-	Concordia 47—	Bar Harbor 22-
	Pekin 69+	Dodge City 6+ 23	Bath
	Peoria 8, 19, *37— 43+	El Dorado 55+	Belfast 41-
	Quincy 10—, 21+	Emporia 39-	Biddeford 59
	Rockford 13+,39+ *45+	Fort Scott 27	Calais7-, 20-
÷	Rock Island. (See-Davenport, Iowa.)	Garden City 9. 11+	Dover-Foxcroft 18-
4	Springfield 9.1. 90.1. #44 /	Goodland10, 31	Fort Kent 17+
	Springfield 2+,20+ *66+ Streator 65-	Great Bend2.28	Houlton 24
	Streator 65— Urbana, (See Champaign.)	Hays7- 20-	Lewiston8-, 17
		Hutchinson12, 18	Millinocket14+
	: : - : · · · · · · · · · · · · · · · ·	Independence20	Orono
	Waukegan 22+ diana:	Iola 44+	Portland 6+ 13+, *47-, 53+
	diana: Anderson 61	Junction City 29+	Presque Isle 8, 19
		Larned 15—	Rockland 25-
	Angola 15+	Lawrence *11.17-	Rumford
	Bedford 68	Leavenworth 54-	Van Buren 15-
	Bloomington 4, *30—, 36	Liberal 14	Waterville 35+
	Columbus 42—	McPherson 26—	Maryland:
	Connersville 38+	Manhattan *8, 23+	Annapolis 53-
	Elkhart 52	Newton14+	Baltimore 2+, 11-, 13+, 18, *24+, 72-
	Evansville 7, 50— *56, 62		Cambridge 22+
	Fort Wayne •27+ 33- 69	Olathe 52-	Cumberland 17+,30-
	Gary 50, *66	Ottawa 21—	Frederick 62.
	Hammond 56—	Parsons 46—	Hagerstown 52, 68+
	Hatfield 9+	Prott	Salisbury 10-
	Huntington 21+	Pratt 36+.	Massachusetts:
	Indianapolis_ 6,8- 13- *20-,26+ 67-	Salina 34 Topoko 19.1. 49 *49.1.	Amherst*82
	Jasper 19+	Topeka 13+ 42, *48+	
	Kokomo 31	Wellington 24—	
	Lafayette *47, 59	Wichita 3- 10- 16-, *22+	Boston *2+ 4-, 5-, 7+, 88, 44+, 56
	Lebanon 18	Winfield 43+	Brockton 62
	Logansport 51	Kentucky.	Easthampton 61
	Madison 25—	Ashland59-	Fall River 40-, 68
	Marion 29+	Bowling Green 13, 17+	Greenfield
	Michigan City 62+	Campbellsville 40+	Holyoke. (See Springfield.)
	Muncie 49, 55+ *71	Corbin 16	Lawrence 72
	Princeton 52+	Danville 35+	Lowell 32+
1	Richmond 32—	Elizabethtown 23	New Bedford 28-, 34+

Channel	Channel	Channel
Massachusetts—Continued No.	Mississippi—Continued No.	Nebraeka—Continued No.
North Adams 19, *80+ Pittsfield 64+	Clarksdale 6,32 Columbia 35+	Falls City 38 Fremont 52
Springfield-Holyoke 22, 55	Columbus 4-,28-	Grand Island 11-,21-
Worcester 14, 20	Corinth29-	Hastings 5-,27-
Michigan: Alma41+	Greenwood21-,27	Hayes Center6 Kearney13, 19
Alnena 9+ *11, 30-	Grenada 15	Lexington 23 —
Ann Arbor 20+ *26-	Gulfport 56-	Lincoln 10+,12- *18+,24
Bad Axe 46-	Hattlesburg9, 17-	McCook' 817
Bay City 5- 63- *73+	Jackson 3+, 12+, 19+, 25-, 47 Kosciusko 53-	Nebraska City 50 Norfolk 33+
Benton Harbor 42	Laurel 33	North Platte 2— 4+
Big Rapids 39	Laurel-Pachuta7	North Platte 2-,4+ Omaha 3,6+ 7,*16,22,23-
Cadillac 13- 45	Louisville46—	Scottsbluff 10-,16+
Calumet 13+	McComb 31—	York 15 Nevada:
Cheboygan 4+ 36+ Coldwater 24-	Meridian 11-, 30-, *36- Natchez 23+	Boulder City 4+
Detroit 2+ 4, 7-, 50- *56, 62	Pascagoula23	Carlin 14
East Lansing 60+	Picayune 14—	Carcon City 37
East Tawas 25—	Starkville 34—	Elko 10-
Escanaba 3+ *49 Flint 12- 16- *22- 28	State College9 38	Ely 3- 6+ Fallon 23-
Gladstone 40—	University	Goldfield 5-
Grand Rapids 8+ *17+ 23-	Vicksburg41-	Hawthorne 31
Hancock10-	West Point56+	Henderson2-
Houghton *25	Yazoo City 49	Los Vegas8-, *10+ 13-
Iron Mountain9,27 Iron River33—	Missouri: Cape Girardeau 12,18+,69	Lovelock 18+ McGill 8+
Ironwood12-, 31-	Carthage56-	Reno 4, 8, *21+ 27-
Jackson 48	Caruthersville 27—	Tonopah9-
Kalamazoo 3-, 36- *74	Chillicothe 14-	Winnemucca7+
Lansing6-, 54 Ludington 18-	Clinton 49—	Yerington 33
Manistee 15-	Columbia 8+, 16+, 22- Farmington 53	New Hampshire:
Manistique 14+	Festus 14+	Claremont 37
Marquette 6- 17, *35	Fulton 24+	Concord 75+
Midland 19+	Hannibal 7-, 27+	Durham
Mount Pleasant 47- Muskegon 29-, 35+	Jefferson City 13,33+ Joplin 12+,30+	Hanover *27+ Keene 45-
Parma-Onondago 10—	Kansas City 4, 5+, 9+ •19+, 25+, 65	Laconia 43
Petoskey 31	Kennett21	Littleton24—
Pontiac4+	'Kirksville 3-,18	Manchester 9- 48+
Port Huron 34+ Rogers City 24	Lebanon 23	Nashua 54
Saginaw 51— 57—	Marshall 40+ Maryville 26	Portsmouth 15 Rochester 51
Sault Ste. Marie 8, 10+, 28- *34	Mexico 45	37
Traverse City 7+,20- *26+	Moberly 35+	Andover *69
West Branch 21	Monett14	Asbury Park 58
Minnesota: Albert Lea	Nevada 18—	Atlantic City 46, 52+
Alexandria 36	Poplar Bluff 15+ Rolla 46	Bridgeton 64— Camden *80
Austin 6-,51+	St. Joseph 2 30 •36	Freehold *74
Bemidji 13-, 24-	St. Louis 4-, 5-, *9, 11-, 30, 36-, 42+	Hammonton *70
Brainerd 12 Cloquet 44	Sedalia 6-,28+	Montclair
Crookston 21	Sikeston 37 Springfield 3+, 10, *26+, 32	Newark 13- New Brunswick *19- 47+
Detroit Lakes 18+	West Plains20-	Paterson 37+
Duluth-Superior, Wis. 3, 6+ *8-, 32, 38	Montana:	Trenton 41+
Ely 16 Fairmont 40+	Anaconda2+	Wildwood 48-
Fairmont 40+ Faribault 20	Billings 2, 8, *11	New Mexico:
Fergus Falls 16-	Bozeman	Alamogordo 17 Albuquerque 4+ *5+ 7+ 13+
Grand Rapids20-	Cut Bank 20+	Artecia 21+
Hastings 29+	Deer Lodge 25+	Atricco-Five Points 18+
Hibbing 10+ International Falls 11	Dillon 20	Belen 24+
Little Falls14+	Glasgow 16 Glendive 18-	Carlsbad 6— 23 Clayton 27—
Mankato 15-	Great Falls 3+, 5+, *23-	Clovis12+, 35
Marshall 22+	Hamilton 17+	Deming 14+
Minneapolis-St. Paul	Hardin 4+	Farmington 17—
Montevideo 19	Havre 9+,11+	Gallup
New Ulm43-	Helena 10+, 12 Kalispell 8-	Hobbs 46 Hot Springs 19
Northfield 26	Laurel 14+	Las Cruces 22—
Owatonna 45 Red Wing 63-	Lewistown 13	Las Vegas 14—
Rochester 10, 55—	Livingston 16—	Lordsburg 23+
St. Cloud 7, 33	Miles City	Los Alamos 20— Lovington 27
St. Paul. (See Minneapolis.)	Polson 18	Portales 22+
Stillwater 39—	Red Lodge 18+	Raton 46- *52
Thief River Falls 15 Virginia 26+	Shelby 14—	Roswell
Wadena 27+	Sidney 14	Santa Fe2+ *9+ 11-
Willmar 31+	Whitefish 16+ Wolf Point 20-	Silver City •10+ 12 Socorro 15+
Winona 61	Nebraska:	Tucumcari25+,
Worthington 32	Alliance 13-,21	New York:
Mississippi: Biloxi 13+ *44+ 50-	Beatrice 40	Albany-Schenectady-Troy6,
Brookhaven 37-1	Broken Bow 14— Columbus 49+	*17+ 23-, 35, 41 Amsterdam 52-,
Canton16	Fairbury 35	Auburn 37

# RULES AND REGULATIONS

Channel	Channel	Channel
New York—Continued No.	North Dakota—Continued No.	Oregon—Continued No.
Batavia 33— Binghamton 12— 40—, *46—	Minot *6+,10-,13+ New Rockford 20+	Baker
Buffalo (also see Buffalo-Niagara	Rugby 38—	Burns
Falls) 17, *23	Valley City 4-,32-	Corvallis *7-, 49-
Buffalo-Niagara Falls 2, 4- 7+ 59	Wahpeton	Eugene •9+, 18, 20+, 20
Carthage7-	Williston 8- 11-, *34+	Grants Pass
Cortland	Ohio:	Klamath Falls2_, 17
Dunkirk 46 Elmira 18+ 24-	Akron 49+ *55-,61+. Ashtabula 15	La Grande 13+ Lebanon 43+
Glens Falls 39+	Athens62-	McMinnville 46-
Gloversville 29-	Bellefontaine 63	Medford5
Hornell 50	Bowling Green *70	North Bend16+
Ithaca *14+ 20-	Cambridge 26	Pendleton 28
Jamestown 58+	Canton 29	Portland 6+, 8-, *10, 12, 21-, 27+
Kingston 66- Lake Placid 5	Chillicothe 56+ Cincinnati 5-,9,12,*48- 54-,74-	Roseburg 4+,28+ Salem 8+,*18-,24+,66
Malone20+ *66	Cleveland 3,5+,8,19,*25+,65+	Springfield 97-
Massena 14	Columbus 4-,6+ 10+ *34,40-	The Dalles 92
Middletown 60	Coshocton 20	Pennsylvania:
New York2-	Dayton 2,7+ *16+,22+	Allentown 39, 67
4,5+7,9+11+*25,31-	Defiance 43 Findley 53	Altoona10-, 19+, 25- Bethlehem51-
Niagara Falls. (See Buffalo-Niagara Falls.)	Findlay 53 Fremont 59+	Bradford 70—
Ogdensburg 24+	Gallipolis72	Butler 40-
Olean 54-	Hamilton-Middletown 65	Chambersburg 46-
Oneonta 62-	Lancaster 28-	Du Bois 31+
Oswego 31	Lima 35— 73	Easton 57-
Patchogue75	Lorain 31—	Emporium:
Plattsburg 28+	Mansfield 36+	Erie 12, 35+, *41-, 66+
Poughkeepsie 21— *83	Marion 17- Massillon 23+	Harrisburg 27-, 55+ 71+ Hazleton 63
Rochester 5— 10+ 15- *21, 27+ Rome. (See Utica.)	Massilon 23+ Middletown. (See Hamilton.)	Irwin4+
Saranac Lake 18	Mount Vernon 58	Johnstown
Schenectady (See Albany.)	Newark 60-	Lancaster8-, 21+
Syracuse 3- 8, *43+	Oxford*14+	Lebanon 15+
Troy. (See Albany.)	Piqua 44-	Lewistown 74-
Utica-Rome 13, *25+ 54-	Portsmouth 30	Lock Haven
Vail Mills10-	Sandusky 42+	Meadville
Watertown 48	Springfield 52 76	
North Carolina:	Steubenville. (See Wheeling, W. Va.)	Oil City
Ahoskie 53 Albemarle 20	Tiffin 47+	Pittsburgh2 -, 11, *13 -, 16, 47 -, 53+
Arheville 13 - *56 - 62 + 78	Toledo 11— 13, *30+ 79	Reading 33+, 61-
Burlington63	Warren 67+	Scranton 16-, 22-, 44
Burnsville 18	Youngstown 21-, 27, 73-	Shamokin 65
Chapel Hill*4+	Zanesville 18-,50+	Sharon39+
Charlotte3, 9+ 36+ *42+	Oklahoma:	State College *48-
Durham 11+ *40- 46+ 73-	Ada 10+,50+	Sunbury 38 Uniontown 14
Elizabeth City 31+	Altus 36 Alva 30	Uniontown 14 Washington 63+
Fayetteville 18— 54— Gastonia 48	Anadarko 58—	Wilkes-Barro
Goldsboro 34,72	Ardmore 12— 55—	Williamsport 80-
Greensboro 2- *51-,57-	Bartlesville62-	York 43, 49
Greenville 9	Blackwell 51-	Rhode Island:
Henderson 52-	Chickasha64	Providence 10+ 12+, 16, *36+
Hendersonville 27	Claremore15	South Carolina:
Hickory 30-	Clinton 32—	Aiken 54
High Point 15+ Jacksonville 16	Durant 39-	Anderson 40, 58 Camden 14
Kannapolis 59+	Elk City 15+, 26+	Charleston 2+ 5+, *13, 17+
Kinston 45	El Reno 56+	Clemson +68
Laurinburg 41—	Enid 5, 21, *27+	Columbia 10-, *19+, 25-, 67+
Lumberton 21+	Frederick 44	Conway 23-
Mount Airy 55	Guthrie 48	Florence 8-,60
New Bern 13-	Guymon 20+	Georgetown 27—
Raleigh 5, *22-, 28-	Hobart 23+ Holdenville 14-	Greenwood 4-, 23+, *29 Greenwood 21-
Roanoke Rapids	Hugo 21+	Lake City55-
Salisbury 80	Lawton 7+ *28+,34-	Lancaster 31—
Sanford 38	McAlester 47	Laurens 45-
Shelby 39	Miami 58+	Marion 43
Southern Pines 49	Muskogee 8- *45+ 66+	Newberry 70
Statesville64-	Norman 31 - *37 -	Orangeburg 44—
Washington 7	Oklahoma City 4-,9-,*13,19+,25-	Rock Hill
Wilmington 3- 6, 29-, *35+ Wilson 56	Okmulgee 26 Pauls Valley 61	Spartanburg 7+, 17-, 74- Sumter 47
Winston-Salem 12, 26+ *32-	Ponca City40-	Union, 65—
North Dakota:	Pryor Creek54	South Dakota:
Bismarck 5, 12 - 18, *24	Sapulpa 42-	Aberdeen 9-, 17+
Bottineau 16+	Seminole 59	Belle Fourche 23-
Carrington 26-	Shawnee 53-	Brookings *8, 25
Devils Lake 8+ 14-	Stillwater 29— *69	Hot Springs
Dickinson 2+ 4, *17	Tulsa 2+ 6, *11-, 17+, 23 Vinita 28-	Huron 12+, 15+
Fargo 6, 11+ *34- 40 Grafton 17	Woodward 8+	Lead 5-, 26 Madison 46
Grand Forks *2, 10	Oregon:	Mitchell5+, 20-
Harvey 22+	Albany 55+	Mobridge 27-
Jamestown 7— 42	Ashland14—	Pierre6-, 10+, *22+
Lisbon 23	Astoria30-	Rapid City 3+, 7+, 15-

Channel	Channel	Channel
South Dakota—Continued No.	Texas—Continued No. El Campo 27	Utah—Continued No. St. George 18+
Sioux Falls 11, 13+ 38+ *44-	El Campo	St. George 18+
Sturgis 20	El Paso 4, •7, 9, 13, 20+, 26+	Salt Lake City_ 2-, 4-5+, •7-, 20+, 26 Tocele
Vermillion *2+ 41 Watertown 3-, 35+	Falfurrias	Vernal 3+
Winner 18—	Fort Stockton 22	Vermont:
Yankton 17—	Fort Worth 5+,11-,20-, *26-	Bennington 72-
Tennessee:	Gainesville 49-	Brattleboro 77+
Athens 14+	Galveston 11+,35- 41-,*47-	Burlington 3,*16+,22+
Bristol, TennBristol, Va5+46-	Gonzales64+	Montpeller 40
Chattanooga 3+ 12- 43+ 49+, *55-	Greenville 69—	Newport 46
Cleveland 38+	Harlingen (also see Brownsville-	Rutland 49+ St. Albans 34-
Cleveland 38+ Columbia 39-	Harringen-Weslaco) 23 Hebbronville 58	St. Albans 34— St. Johnsbury 30
Cookeville24, *69	Henderson 42+	Virginia:
Crousville *77	Hereford 19—	Blackburg**60+
Covington 19-	Hillsboro 63	Bristol. (See Bristol, Tenn.)
Dyersburg 46+	Houston 2-, *8-, 13-, 23+, 29-, 39-	Charlottesville*45+ 64+
Elizabethton 22+	Huntsville 15	Covington 44+
Fayetteville 27+	Jacksonville 36-	Danville, 24—
Gallatin 48+ Harriman 67	Jasper 49+ Kermit 14	Emporla 25+
Humboldt 25	Kilgore 59	Farmville 19 47
Jackson 7+ 16+	Kingsville 40	Front Royal 33—
Johnson City 11- 34+	Lamesa 28	Harriconburg 3-,34-
Kingsport 28	Lampasas 40-	Lexington 54
Knoxville 6, 10+ *20+ 26-	Laredo 8, 13, *15+	Lynchburg 13, 16—
Lawrenceburg 50+	Levelland 38-	Marion50
Lebanon 58	Littlefield 32	Martinoville 35—
Lexington *11 McMinnville 46	Longview 32, 384	Newport News. (See Norfolk-Ports-
Maryville 51	Lubbock 5-, 11, 13-, *20, 26 Lufkin 9, 46-	mouth-Newport'News.) Norfolk-Portsmouth (also see Nor-
Memphis 3, 5+ *10+ 13+ 42- 48-	McAllen 20—	folk-Portamouth-Newport News) _ 27
Morristown 54+	McKinney 65—	Norfolk-Portsmouth-Newport News
Murfreesboro 18-	Marfa 19+	(also see Norfolk-Portsmouth) 3+
Nashville *2- 4+ 8+ 30+ 36+	Marshall 16-	
Oak Ridge 32+	Mercedes 32	10+, 15, *21-, 33 Norton 52+
Old Hickory5	Mexic 50-	Petersburg 8,41
Paris 51+ Pulaski 44-	Midland 2+, 18	Portsmouth. (See Norfolk-Ports-
Shelbyville62_	Mineral Wells 38 Mission 14	mouth and also see Norfolk, Ports- mouth-Newport News.)
Sneedville	Monahans9—	Pulacki 37—
Springfield42	Mount Pleasant 35	Richmond 6+ 12-, *23, 23+
Tullahoma 68-	Nacogdoches 40-	Roanoke 7-, 10, 27+ °33-
Union City 55	New Braunfels 62—	South Boston 14+
Texas:	Odessa 7-, 24-	Staunton 36
Abilene 9+ 33-	Orange 43—	Waynesboro 42
Alice 34+ Alpine 12-	Pampa 17— Paris 33+	Williamsburg17
Amarillo *2_, 4, 7, 10	Pearsall 31	Winchester 23+
Athens 25+	Pecos 16+	Washington: Aberdeen 53
Austin 7+ 18-, 24, *70-	Perryton22	Anacortes
Ballinger 25	Plainview 29+	Bellingham 12+ 18+ 24-
Bay City 33	Port Arthur. (See Beaumont.)	Bremerton 44, 50
Beaumont-Port Arthur 4-	Quanah 42	Centralia17
6-,31+ *37 Beeville 38-	Raymondville 42	Ellensburg 49, *65
Big Spring4_,34+	Rosenberg 17— San Angelo 3—, 8+, 17+, °23—	Ephrata43
Bonham 43	San Antonio 4, 5, '9 -, 12 +, 35 +, 41 +	Everett 22-, 23-
Borger 33	San Benito48	Grand Coules 37 Hogulam 52
Brady 15-	San Marcos 53+	Hoquiam 52 Kelco 39
Breckenridge 14+	Seguin 14—	Kennewick (also see Kennewick-
Brenham 52—	Seymour 24+	Richland-Pacco) 25
Brownsyille (also see Brownsyille-	Sherman	Kennewick-Richland-Pasco *41
Harlingen-Weslaco) 36	Snyder 30+ - Stephenville 32+	***************************************
Brownsville-Harlingen-Weslaco 1 4+,5-	Sulphur Springs 41	Olympia 60
Brownwood19	Sweetwater 12	Omak-Okanozan*35— Okanozan. (See Omak.)
Bryan 54-	Taylor 58+	Pasco (also see Kennewick-Rich-
Childress 40	Temple 6, 16, 22+	land-Pasco) 19—
Cleburne 57	Terrell53	Port Angeles 16—
College Station #2.1.49	Texarkana 6+, •18, 24-	Pullman *10- 24
Conroe *3+ 48-	Tyler 7, 19-, 72	Richland (also see Kennewick-Rich-
Corpus Christi 6+, 10-, *16+, 22, 43	Vernon 20	land-Pasco) 31
Corsicana 47+	Victoria 19+	Scattle 4, 5+ 7, *9, 20, 26+
Crockett 56	Waco 10+, *28-,34	Spokane 2- 4-, 6- *7+ Tacomo 11+ 13- *56, 62
Crystal City 28+	Waxahachie 45-	Walla Walla 5— 8, *22
Cuero 25-	Weatherford 51	Wenatchee
Dalhart 16	Weslaco. (See Brownsville-Har-	Yakima 23+, 29+ *47
Dallas 4+, 8, *13+, 23, 29, 73 Del Rio 16-	lingen-Weslaco.)	West Virginia:
Denison 52	Wichita Falis	Beckley 4,21,63
Denton *2. 17	Utah: Brigham 36—	Bluefield6-41-
Eagle Pass26	Cedar City 5	Charleston 8+ *43+ 49-
Edinburg 26—	Logan 12-, 30, *46	Clarksburg 12+,22,69 Elkins 40+
¹ These assignments may be utilized in any	Ogden9+, •18-, 24	Fairment 35
community lying within the area of the tri-	Price	Hinton 31
angle formed by Brownsville, Harlingen and	Provo 11+, 22, *28	Huntington3+, 13+, *53-
Weslaco.	Richfield 13-4	Lozan 23-

	<b>C</b> hanne <b>l</b>
West Virginia—Continued	No.
Martinsburg	58—
Morgantown	- *24
ParkersburgWelch	15
Weston	*5 92 ·
Weston	1-
benville, Ohio)	*57+
Wheeling-Steubenville, Ohio 7, 9	+ 51+
11 11 11 11 11 11 11 11 11 11 11 11 11	17
Wisconsin:	*50.1
Adams	
AppletonAshland	
Beaver Dam	37
Beloit	57.
Chilton 13, *19	*24+
Eau Claire 13, *19	9+,25+
Fond du Lac2+, 5	
Janesville	- 63+
Kenosha	61-
Kenosha8+ *32+,38	3- 72
Madison 3, *21 - 27  Manitowoc 11+, 32  Milwaukee 4 - *10+ 12, 19-	7- 33+
Manitowoc	65
Marinette 11+, 32-	ー *38十 95 91 土
Oshkosh	48-
Park Falls	*18
Portage Prairie du Chien	17-
Prairie du Chien	34
Racine 49	<b>→,</b> 55
Rhinelander Rice Lake	22 21+
Richland Center1	5. *66-
Sheboygan	. 59→
Shell LakeSparta	<b>- *30</b> →
Sparta	50-
Stevens Point 20	+ 26- - 44-
Superior (See Dulyth Minn)	_ 44-
Wausau 7- 164	*46-
Whitefish Bay	6
Sturgeon Bay Superior. (See Duluth, Minn.) Wausau 7- 16-  Whitefish Bay Wisconsin Rapids	_ 14
wyoming:	
Buffalo	29 2+ 6+
Cheyenne	_ 3.5+
Cody	24-
Douglas	14
Evanston	_ 14-
Green River	- 31- - 16
Greybull	40
Greybull	17-
Laramie *8	+ 18+
TOAGII ===================================	36-1→
Lusk	_ 19-
NewcastlePowell	- 28+ - 30+
Rawlins	_ 11_
Rawlins	- 10+
Rock Springs	_ 13
Sheridan 9	- 12+
Thermopolis	
Wheatland	_ 24+
Worland	34
U. S. TERRITORIES AND POSSESSIO	
Alacka	
Anchorage 2- *7- Fairbanks2+ 4+ 7+ *9+ 11 Juneau *3	11. 18
Fairbanks2+ 4+ 7+ *9+ 11	+, 13+
Juneau*3	, 8, 10
Retchikan 2	. 4. •9
Seward4	9-
Sitka Hawaiian Islands:	
Hilo, Heweii 9 *4 7 0	11. 13
Honolulu, Oahu	2+.
4- *7+ 9- 11-	+ 13-
Honolulu, Oahu	+ 12-
Walluku, Maul 3, 8, * Puerto Rico:	10, 12
Arecibo	_ 13+
Caguas	_ 11-
Mayaguez :	3-1- 5-
Ponce	7+ 9-
San Juan 2+ 4. Virgin Islands:	- •6+3
Charlotte Amalie 10-	_ 10.12
Christiansted	-, 12+ - 8+,

§ 3.607 Availability of channels. (a) Subject to the provisions of paragraph (b) of this section, applications may be filed to construct television broadcast stations only on the channels assigned in the Table of Assignments (§ 3.606 (b)) and only in the communities listed therein. Applications which fail to comply with this requirement, whether or not accompanied by a petition to amend the table, will not be accepted for filing.

(b) A channel assigned to a community listed in the Table of Assignments is available upon application in any unlisted community which is located within 15 miles of the listed community. In addition, a channel assigned to a community listed in the Table of Assignments and not designated for use by noncommercial educational stations only, is available upon application in any other community within 15 miles thereof which, although listed in the Table, is assigned only a channel designated for use only by noncommercial educational stations. Where channels are assigned to two or more communities listed in combination in the Table of Assignments the provisions of this paragraph shall apply separately to each community so listed. The distance between communities shall be determined by the distance between the respective coordinates thereof as set forth in the publication of the United States Department of Commerce entitled "Air Line Distance Between Cities in the United States." (This publication may be purchased from the Government Printing Office, Washington, D. C.) If said publication does not contain the coordinates of either or both communities, the coordinates of the main post office in either or both of such communities shall be used. The method to be followed in making the measurements is set forth in § 3.611

§ 3.608 International agreements. Authorizations issued by the Commission for television broadcast facilities will be subject to the provisions of any agreements entered into by the United States with Canada and Mexico concerning television assignments and authorizations. Where, pursuant to such an agreement. timely objection is received from the foreign country involved to an authorization granted by the Commission, the Commission may, on its own motion, set aside such authorization pending consideration of such objection. Upon receipt of such objection, the Commission will notify the person to whom such authorization has been issued.

§ 3.609 Zones. (a) For the purpose of allocation and assignment, the United States is divided into three zones as

(1) Zone I consists of that portion of the United States located within the confines of the following lines drawn on the United States Albers Equal Area Projection Map (based on standard parallels 29½ and 45½° North American datum) Beginning at the most easterly point on the State boundary line between North Carolina and Virginia; thence in a straight line to a point on the Virginia, West Virginia boundary line located at North Latitude 37° 49' and

West Longitude 80° 12' 30"; thence westerly along the southern boundary lines of the States of West Virginia, Ohio, Indiana and Illinois to a point at the junction of the Illinois, Kentucky, and Missouri State boundary lines; thence northerly along the western boundary line of the State of Illinois to a point at the junction of the Illinois. Iowa, and Wisconsin State boundary lines; thence easterly along the northern State boundary line of Illinois to the 90th meridian; thence north along this meridian to the 43.5° parallel; thence east along this parallel to the 71st meridian; thence in a straight line to the intersection of the 69th meridian and the 45th parallel; thence east along the 45th parallel to the Atlantic Ocean. When any of the above lines pass through a city, the city shall be considered to be located in Zone I. (See Figure 1 of § 3.699.)

(2) Zone II consists of that portion of the United States which is not located in either Zone I or Zone III. and Puerto Rico, Alaska, Hawaiian Islands and the

Virgin Islands.

(3) Zone III consists of that portion of the United States located south of a line, drawn on the United States Albers Equal Area Projection Map (based on standard parallels 29½° and 45½°; North American datum), beginning at a point on the east coast of Georgia and the 31st parallel and ending at the United States-Mexican border, consisting of arcs drawn with a 150 mile radius to the north from the following specified points:

		North	West
		latitude	longitudo
(a)		29*40'00"	83°24'00"
(b)		30°07′00′′	84°12'00"
(c)	~~~~~~~~~~	30°31′00′′	86°30'00"
(d)		30°48'00"	87°58'30"
(e)		30*05'09"	90°38'30"
Ìή	~~~~~~~~~~	30°04'30"	93*10'00"
(g)		29*46'00"	95°05'00"
(h)		28°43'00"	96°30'80"
(1)		27°52'80"	97*32'00"

When any of the above arcs pass through a city, the city shall be considered to be located in Zone II. (See Figure 2 of § 3.699.)

§ 3.610 Separations. (a) The provisions of this section relate to assignment separations and station separations. Petitions to amend the Table of Assignments (§ 3.606 (b)) (other than those also expressly requesting amendment of this section or § 3.609) will be dismissed and all applications for new television broadcast stations or for changes in the transmitter sites of existing stations will not be accepted for filing if they fail to comply with the requirements specified in paragraphs (b). (c) and (d) of this section:

Note: Licensees and permittees of television broadcast stations which were operating on April 14, 1952 pursuant to one or more separations below those set forth in § 3,610 may continue to so operate, but in no event may they further reduce the separations below the minimum. As the existing separations of such stations are increased, the new separations will become the required mini-mum separations until separations are reached which comply with the requirements of § 3.610. Thereafter, the provisions of said section shall be applicable.

and station separations:

Zone	Channels 2-13	Channels 14-83
I	Miles 170 190 220	Miles 155 175 205

- (2) The minimum co-channel mileage separation between a station in one zone and a station in another zone shall be that of the zone requiring the lower separation.
- (c) Minimum assignment and station adjacent channel separations applicable to all zones:
- (1) Channels 2-13 Channels 14-83 60 miles 55 miles
- (2) Due to the frequency spacing which exists between Channels 4 and 5, between Channels 6 and 7, and between Channels 13 and 14, the minimum adjacent channel separations specified above shall not be applicable to these pairs of channels (see §-3.603)
- (d) In addition to the requirements of paragraphs (a) (b) and (c) of this section, the minimum assignment and station separations between stations on Channels 14–83, inclusive, as set forth in Table IV of § 3.698 must be met in either rule-making proceedings looking towards the amendment of the Table of Assignments (§ 3.606 (b)) or in licensing proceedings.. No channel listed in column (1) of Table IV of § 3.698 will be assigned to any city, and no application for an authorization to operate on such a channel will be granted unless the mileage separations indicated at the top of columns (2)-(7) inclusive, are met with respect to each of the channels listed in those columns and parallel with the channel in column (1)
- (e) The zone in which the transmitter of a television station is located or proposed to be located determines the applicable rules with respect to co-channel mileage separations where the transmitter is located in a different zone from that in which the channel to be employed is located.
- § 3.611 Reference points and distance computations. (a) In considering petitions to amend the Table of Assignments (§ 3.606 (b)), the following reference points shall be used by the Commission in determining assignment separations between communities:
- (1) Where transmitter sites for the pertinent channels have been authorized in communities involved in a petition to amend the Table of Assignments, separations between such communities shall be determined by the distance between the coordinates of the authorized transmitter sites in the respective communities as set forth in the Commission's authorızations therefor.
- (2) Where an authorized transmitter site is available for use as a reference point in one community but not in the other for the pertinent channels, separations shall be determined by the distance between the coordinates of the transmitter site as set forth in the Commission's authorization therefor and the coordinates of the other community as set

(b) Minimum co-channel assignment forth in the publication of the United States Department of Commerce entitled "Air Line Distances Between Cities in the United States." If said publication does not contain the coordinates for said other community, the coordinates of the main post office thereof shall be used.

(3) Where no authorized transmitter sites are available for use as reference points in both communities for the pertinent channels, the distance between the two communities listed in the above publication shall be used. If said publication does not contain such distance, the separation between the two communities shall be determined by the distance between the coordinates thereof as set forth in said publication. Where such coordinates are not contained in said publication, the coordinates of the main post offices of said communities shall be used.

(b) Station separations in licensing proceedings shall be determined by the distance between the coordinates of the proposed transmitter site in one community and

(1) The coordinates of an authorized transmitter site for the pertinent channel in the other community; or, where such transmitter site is not available for use as a reference point,

(2) The coordinates of the other community as set forth in the above-described publication of the United States Department of Commerce; or, if not contained therein,

(3) The coordinates of the main post office of such other community.

- (4) In addition, where there are pending applications in other communities which, if granted, would have to be considered in determining station separations, the coordinates of the transmitter sites proposed in such applications must be used to determine whether the requirements with respect to minimum separations between the proposed stations in the respective cities have been met.
- (c) In measuring assignment and station separations involving cities listed in the Table in combination, where there is no authorized transmitter site in any of the combination cities on the channel involved, separation measurements shall be made from the reference point which will result in the lowest separation.
- (d) The distance between reference points is considered to be the length of the hypotenuse of a right triangle, one side of which is the difference in latitude of the reference points and the other side the difference in longitude of the two reference points, and shall be computed as follows: (This method is appropriate for determining distances up to 220 miles, and for such distances will normally be more accurate than using spherical trigonometry without correction for the spheroidal shape of the earth. However, its accuracy deteri-orates rapidly at distances beyond 300 miles and this method should not be used to compute greater distances.)
- (1) Determine the difference in latitude and the difference in longitude between the two reference points. Convert these two differences into degrees and decimal parts of a degree in accordance with Table I of § 3.698.

(2) Determine the middle latitude of the two reference points to the nearest second of latitude (average the latitudes of the two points).

(3) Multiply the difference in latitude by the number of miles per degree of latitude difference obtained from Table II of § 3.698 for the appropriate middle latitude (interpolate linearly) This determines the North-South distance in statute miles.

Note: In determining necessary distance computations for the Territories, the approcomputations for the Territories, the appropriate mileage per degree may be obtained by linear interpolation of the data given on pages 122 and 123 of the tables in publication H. O. No. 9 (Bowditch-American Practical Navigator—1943 Edition) of the U. S. Navy Dept., Hydrographic Office. This publication, the contraction of the U. S. Navy Dept., Hydrographic Office. lication may be purchased from the Government Printing Office, Washington, D. C.

(4) Multiply the difference in longitude by the number of miles per degree of longitude difference obtained from Table III of § 3.698, for the appropriate middle latitude (interpolate linearly). This determines the East-West distance in statute miles.

(5) Determine the distance between the two reference points by the square root of the sum of the squares of the distances obtained in subparagraphs (3) and (4) of this paragraph, i. e.

 $D = (L_3^2 + L_0^3)^{1/2}$ 

where: D =Distance in statute miles La=North-South distance in miles from (3) above
Lo=East-West distance in miles from (4)

above

In computing the above, sufficient decimal figures shall be used to determine the distance to the nearest mile.

§ 3.612 Protection from interference. Permittees and licensees of television broadcast stations are not protected from any interference which may be caused by the grant of a new station or of authority to modify the facilities of an existing station in accordance with the provisions of this subpart. The nature and extent of the protection from interference accorded to television broadcast stations is limited solely to the protection which results from the minimum assignment and station separation requirements and the rules with respect to maximum powers and antenna heights set forth in this subpart.

Nore: The nature and extent of the protection from interference accorded to television broadcast stations which were authorized prior to April 14, 1952, and which were operating on said date is limited not only as specified above but is further limited by any smaller separations existing between such stations on said date. Where, as a result of the adoption of the Table of Assignments, or of changes in transmitter sites made by such stations after said date, separations smaller than the required minimum are increased but still remain lower than the required minimum, protection accorded such stations will be limited to the new separa-

§ 3.613 Main studio location. (a) The main studio of a television broadcast station shall be located in the principal community to be served. Where the principal community to be served is a city. town, village or other political subdivision, the main studio shall be located within the corporate boundaries of such city, town, village or other political sub-

division. Where the principal community to be served does not have specifically defined political boundaries, applications will be considered on a caseto-case basis in the light of the particular facts involved to determine whether the main studio is located within the principal community to be served.

(b) In cases where an adequate showing is made that there is good cause for locating a main studio outside the principal community to be served and that to do so would not be inconsistent with the operation of the station in the public interest, the Commission will permit the use of a main studio location other than that specified in paragraph (a) of this section. The licensee or permittee of a television broadcast station shall not move his main studio outside the principal community in which it is located without first securing a modification of construction permit or license. Such licensee or permittee shall notify the Commission promptly of any change of the location of the main studio within the community. In any case where the main studio is located outside the principal community to be served, the licensee or permittee of a television broadcast station shall not move his main studio without first securing a modification of construction permit or license.

§ 3.614 Power and antenna height requirements-(a) Minimum requirements. Applications will not be accepted for filing if they specify less than -10 dbk (100 watts) visual effective radiated power in any horizontal direction. No minimum antenna height above average terrain is specified.

(b) Maximum power Applications will not be accepted for filing if they specify a power in excess of that provided for in this paragraph. Except as provided in subparagraph (1) of this paragraph, the maximum effective radiated powers of television broadcast stations operating on the channels set forth below with antenna heights not in excessof 2,000 feet above average terrain shall be as follows:

Channel Nos.	Maximum visual effec- tive radiated power in db. above one kilo- watt (dbk.)
2-6	20 dbk. (100 kw.). 25 dbk. (316 kw.). 30 dbk. (1000 kw.).

(1) In Zone I, on Channels 2-13, mclusive, the maximum powers specified above for these channels may be used only with antenna heights not in excess of 1,000 feet above average terrain. Where antenna heights exceeding 1.000 feet above average terrain are used on Channels 2-13, or antenna heights exceeding 2,000 feet above average terrain are used on Channels 14-83, the maximum power shall be based on the chart designated as Figure 3 of § 3.699.

(2) In Zones II and III, the maximum powers which may be used by television broadcast stations operating on the respective channels set forth in the above table with antenna heights exceeding 2,000 feet above average terrain shall be

based on the chart designated as Figure 4 of § 3.699.

(3) The effective radiated power in any horizontal or vertical direction may not exceed the maximum values permitted by this section and Figures 3 and 4 of § 3.699.

(4) The maximum effective radiated power in any direction above the horizontal plane shall be as low as the state of the art permits and may not exceed the effective radiated power in the horizontal direction in the same vertical plane.

(c) Determination of applicable rules. The zone in which the transmitter of a television station is located or proposed to be located determines the applicable rules with respect to maximum antenna heights and powers for VHF stations when the transmitter is located in Zone I and the channel to be employed is located in Zone II, or the transmitter is located in Zone II and the channel to be employed is located in Zone I.

§ 3.615 Administrative changes in authorizations. In the issuance of television broadcast station authorizations, the Commission will specify the transmitter output power and effective radiated power to the nearest 0.1 dbk. Powers specified by kilowatts shall be obtained by converting dbk to kilowatts to 3 significant figures. Antenna heights above average terrain will be specified to the nearest 10 feet. Midway figures will be authorized in the lower alternative.

### APPLICATIONS AND AUTHORIZATIONS

§ 3.621 Noncommercial educational stations. In addition to the other provisions of this subpart, the following shall be applicable to noncommercial educational television broadcast stations:

(a) Except as provided in paragraph (b) of this section, noncommercial educational broadcast stations will be licensed only to nonprofit educational organizations upon a showing that the proposed stations will be used primarily to serve the educational needs of the community for the advancement of educational programs; and to furnish a nonprofit and noncommercial television broadcast service.

(1) In determining the eligibility of publicly supported educational organizations, the accreditation of their respective state departments of education shall be taken into consideration.

(2) In determining the eligibility of privately controlled educational organizations, the accreditation of state departments of education or recognized regional and national educational accrediting organizations shall be taken into consideration.

(b) Where a municipality or other political subdivision has no independently constituted educational organization such as, for example, a board of education having autonomy with respect to carrying out the municipality's educational program, such municipality shall be eligible for a noncommercial educational television broadcast station. In such circumstances, a full and detailed showing must be made that a grant of the application will be consistent with

the intent and purpose of the Commission's Rules relating to such stations.

(c) Noncommercial educational television broadcast stations may transmit educational, cultural and entertainment programs, and programs designed for use by schools and school systems in connection with regular school courses, as well as routine and administrative material pertaining thereto.

(d) An educational station may not broadcast programs for which a consideration is received, except programs produced by or at the expense of or furnished by others than the licensee for which no other consideration than the furnishing of the program is received by the licenseo. The payment of line charges by another station or network shall not be considered as being prohibited by this para-

graph.

(e) To the extent applicable to programs broadcast by a noncommercial educational station produced by or at the expense of or furnished by others than the licensee of said station, the provisions of § 3.654 relating to announcements regarding sponsored programs shall be applicable, except that no announcements (visual or aural) promoting the sale of a product or service shall be transmitted in connection with any program: Provided, however, That where a sponsor's name or product appears on the visual image during the course of a simultaneous or rebroadcast program either on the backdrop or in similar form, the portions of the program showing such information need not be deleted.

§ 3.622 Applications for television stations. Applications for new stations or for modifications of existing authorizations shall be filed on FCC Form 301. for licenses, on FCC Form 302; for renewal of licenses, on FCC Form 303. Separate applications shall be filed by each applicant for the voluntary sharing of television channels. Such applications shall be accompanied by copies of the time-sharing agreements under which the applicants propose to operate.

§ 3.623. Full disclosures. tions shall contain full and complete disclosures with regard to the real party or parties in interest, and their legal, technical, financial, and other qualifications, and as to all matters and things required to be disclosed thereby.

§ 3.624 Repetitious applications. (a) Where an applicant has been afforded an opportunity to be heard with respect to a particular application for a new television broadcast station, or for change of existing service or facilities, and the Commission has, after hearing or default, denied the application or dismissed it with prejudice, the Commission will not consider another application for a station of the same class to serve in whole or in part the same area, by the same applicant or by his successor or assignee, or on behalf of or for the benefit of the original parties in interest, until after the lapse of 12 months from the effective date of the Commission's order.

(b) Where an appeal has been taken from the action of the Commission in denying a particular application, another

application for the same class of broadcast station and for the same area, in whole or in part, filed by the same applicant or by his successor or assignee, or on behalf or for the benefit of the original parties in interest, will not be considered until the final disposition of such appeal.

- § 3.625 Installation of apparatus. Applications for construction permits or modification thereof involving the installation of new transmitting apparatus should be filed at least 60 days prior to the contemplated installation.
- § 3.626 Period of construction. Each construction permit will specify a maximum of 60 days from the date of granting thereof as the time within which construction of the station shall begin, and a maximum of 6 months thereafter as the time within which construction shall be completed and the station ready for operation, unless otherwise deter-mined by the Commission upon proper showing in any particular case.
- § 3.627 Forfeiture of construction permits; extension of time. (a) A construction permit shall be automatically forfeited if the station is not ready for operation within the time specified therein or within such further time as the Commission may have allowed for completion, and a notation of the forfeiture of any construction permit under this provision will be placed in the records of the Commission as of the expiration date.
- (b) An application (FCC Form 701) for extension of time within which to construct a station shall be filed at least 30 days prior to the expiration date of such permit if the facts supporting such application for extension are known to the applicant in time to permit such filing. In other cases, such applications will be accepted upon a showing satisfactory to the Commission of sufficient reasons for filing within less than 30 days prior to the expiration date. Such applications will be granted upon a specific and detailed showing that the failure to complete was due to causes not under the control of the grantee, or upon a specific and detailed showing of other matters sufficient to justify the exten-
- (c) If a construction permit has been allowed to expire for any reason, application may be made for a new permit on FCC Form 321, "Application for Con-struction Permit to Replace Expired Permit."
- § 3.628 Equipment tests. (a) During the process of construction of a television broadcast station, the permittee, after notifying the Commission and Engineer in Charge of the radio district in which the station is located may, without further authority of the Commission, conduct equipment tests for the purpose of such adjustments and measurements as may be necessary to assure compliance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations.
- (b) The Commission may notify the permittee to conduct no tests or may cancel, suspend, or change the date for the beginning of equipment tests as and

when such action may appear to be in the public interest, convenience, and necessity.

(c) Equipment tests may be continued so long as the construction permit shall remain valid.

- (d) Inspection of a station will ordinarily be required during the equipment test period and before the commencement of program tests. After construction and after adjustments and measurements have been completed to show compliance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations, the permittee should notify the Engineer in Charge of the radio district in which the station is located that it is ready for inspection.
- (e) The authorization for tests embodied in this section shall not be construed as constituting a license to operate but as a necessary part of construc-
- § 3.629 Program tests. (a) Upon completion of construction of a television broadcast station in accordance with the terms of the construction permit, the technical provisions of the application therefor, and the rules and regulations, and when an application for station license has been filed showing the station to be in satisfactory operating condition, the permittee may request authority to conduct program tests: Provided, That such request shall be filed with the Commission at least ten (10) days prior to the date on which it is desired to begin such operation and that the Engineer in Charge of the radio district in which the station is located is notified. (All data necessary to show compliance with the terms and conditions of the construction permit must be filed with the license application.)
- (b) Program tests shall not commence until specific Commission authority is received. The Commission reserves the right to change the date of the beginning of such tests or to suspend or revoke the authority for program tests as and when such action may appear to be in the public interest, convenience, and necessity.
- (c) Unless sooner suspended or revoked, the program test authority continues valid during Commission con-sideration of the application for license and during this period further extension of the construction permit is not required. Program test authority shall be automatically terminated by final determination upon the application for station license.
- (d) All operation under program test authority shall be in strict compliance with the rules governing television broadcast stations and in strict accordance with representations made in the application for license pursuant to which the tests were authorized.
- (e) The granting of program test authority shall not be construed as approval by the Commission of the application for station license.
- § 3.630 Normal license period. (a) All television broadcast station licenses will be issued for a normal license period of three years. Licenses will be issued to expire at the hour of 3:00 a. m., e. s. t.,

in accordance with the following schedule and at three-year intervals there-

(1) For stations located in Delaware and Pennsylvania, August 1, 1957.

(2) For stations located in Maryland, District of Columbia, Virginia, West Virginia, October 1, 1957.
(3) For stations located in North

Carolina, South Carolina, December 1, 1957.

(4) For stations located in Florida, Puerto Rico; and Virgin Islands, February 1, 1958.

(5) For stations located in Alabama

and Georgia, April 1, 1958.

(6) For stations located in Arkansas, Louisiana, and Mississippi, June 1, 1958.

(7) For stations located in Tennessee, Kentucky, and Indiana, August 1, 1958.

(8) For stations located in Ohio and Michigan, October 1, 1958.

(9) For stations located in Illinois and Wisconsin, December 1, 1958.

(10) For stations located in Iowa and Missouri, February 1, 1956.

(11) For stations located in Minnesota, North Dakota, South Dakota, Montana, and Colorado, April 1, 1956.

(12) For stations located in Kansas, Oklahoma, Nebraska, June 1, 1956.

(13) For stations located in Texas, August 1, 1956.

(14) For stations located in Wyoming, Nevada, Arizona, Utah, New Mexico, and Idaho, October 1, 1956.

(15) For stations located in California, December 1, 1956. (16) For stations located in Washing-

ton, Oregon, Alaska, and Hawaii, February 1, 1957.

(17) For stations located in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, April 1, 1957

(18) For stations located in New Jersey and New York, June 1, 1957.

Note: Renewals of licenses will be granted for the period specified in the rule: Provided, however, That if as a result of the transition from the previous schedule to the above schedule the period for which a license is renewed is 6 months or less, the licensee may within the period 60 days to 30 days before the expiration date of such renewed license file, in lieu of renewal application (FCC Form 303), a written application under oath for the next renewal of license which shall consist of (1) a request that its license be re-newed; (2) a statement that no substantial changes have been made in its operations or in its plans for future operations since its last renewal application; or if changes have been made or proposed, a statement specifying such changes; and (3) a statement that the applicant waives any claim to the use of any particular frequency or of the ether as against the regulatory power of the United States because of the previous use of the came, whether by licence or otherwise. Upon review of such statements, the Commission may grant a renewal of license for the full period provided for in the rule; or if the Commission requires additional information, it may require the filing of renewal application (FCC Form 303).

§ 3.631 Renewal of license. (a) Unless otherwise directed by the Commission, each application for renewal of a television station license shall be filed at least 90 days prior to the expiration date of the license sought to be renewed (FCC Form 303). No application for

renewal of a television broadcast station will be considered unless there is on file with the Commission the information currently required by §§ 1.341—1.344 of this chapter, reference to which by date and file number shall be included in the application.

(b) Whenever the Commission regards an application for a renewal of a television station license as essential to the proper conduct of a hearing or investigation, and specifically directs that it be filed by a certain date, such application shall be filed within the time thus specified. If the licensee fails to file such application within the prescribed time, the hearing or investigation shall proceed as if such renewal application had been received.

### § 3.632 [Reserved.]

§ 3.633 License, simultaneous modification and renewal. When an application is granted by the Commission necessitating the issuance of a modified license less than 60 days prior to the expiration date of the license sought to be modified, and an application for renewal of said license is granted subsequent or prior thereto (but within 30 days of expiration of the present license), the modified license as well as the renewal license shall be issued to conform to the combined action of the Commission.

§ 3.634 Assignment or transfer of control—(a) Voluntary. Application for consent to voluntary assignment of a television station construction permit or license or for consent to voluntary transfer of control of a corporation holding a television station construction permit or license shall be filed with the Commission on FCC Form 314 (Assignment of License), FCC Form 315 (Transfer of Control) or FCC Form 316 (Short Form) at least 60 days prior to the contemplated effective date of assignment or transfer of control.

(b) Pro forma. Assignment or transfer application shall be filed on FCC

Form 316 where:

(1) There is an assignment from an individual or individuals (including partnerships) to a corporation owned and controlled by such individuals or partnerships without any substantial change in their relative interests;

(2) There is an assignment from a corporation to its individual stockholders without effecting any substantial change in the disposition of their

interests;

(3) There is an assignment or transfer by which certain partners or stockholders retire but no new ones are brought in, provided that the interest transferred is not a controlling one;

(4) There is a corporate reorganization which involves no substantial change in the beneficial ownership of

the corporation;

(5) There is an involuntary transfer to an Executor, Administrator or other court appointed officer caused by death or legal &sability, except that this form does not cover assignments (or transfers) from the Executor, Administrator or other court appointed officers to the ultimate beneficiary.

(6) There is an assignment or transfer from a corporation to a wholly owned subsidiary thereof or vice versa, or where there is an assignment from a corporation to a corporation owned or controlled by the assignor stockholders without substantial change in their interests;

(7) There is an assignment of less than a controlling interest in a part-

nership.

(c) Involuntary. In the event of the death or legal disability of a permittee or licensee, or a member of a partnership, or a person directly or indirectly in control of a corporation, which is a permittee or licensee:

(1) The Commission shall be notified in writing promptly of the occurrence of such death or legal disability, and

- (2) Within 30 days after the occurrence of such death or legal disability, application on FCC Form 316 shall be filed for consent to involuntary transfer of control-of such corporation to a person or entity qualified to succeed to the foregoing interests under the laws of the place having jurisdiction over the estate involved.
- § 3.635. Use of common antenna site. No television license or renewal of a television license will be granted to any person who owns, leases, or controls a particular site which is peculiarly suitable for television broadcasting in a particular area and (a) which is not available for use by other television licensees; and (b) no other comparable site is available in the area; and (c) where the exclusive use of such site by the applicant or licensee would unduly limit the number of television stations that can be authorized in a particular area or would unduly restrict competition among television stations.

§ 3.636 Multiple ownership. (a) No license for a television broadcast station shall be granted to any party (including all parties under common control) if:

(1) Such party directly or indirectly owns, operates, or controls another television broadcast station which serves substantially the same area; or

(2) Such party, or any stockholder, officer or director of such party, directly or indirectly owns, operates, controls, or has any interest in, or is an officer or director of any other television broadcast station if the grant of such license would result in a concentration of control of television broadcasting in a manner inconsistent with public interest, convenience, or necessity. In determining whether there is such a concentration of control, consideration will be given to the facts of each case with particular reference to such factors as the size, extent and location of area served, the number of people served, and the extent of other competitive service to the areas in question. The Commission, however, will in any event consider that there would be such a concentration of control contrary to the public interest, convenience or necessity for any party or any of its stockholders, officers or directors to have a direct or indirect interest in, or be stockholders, officers, or directors of, more than seven television broadcast stations, no more than five of which may be in the VHF band.

(b) Paragraph (a) of this section is not applicable to non-commercial educational stations.

Note 1: The word "control" as used herein is not limited to majority stock ownership, but includes actual working control in whatever manner exercised.

Note 2: In applying the provisions of paragraph (a) of this section to the stockholders of a corporation which has more than 50 voting stockholders, only those stockholders need be considered who are officers or directors or who directly or indirectly own 1 percent or more of the outstanding voting stock.

§ 3.637 Alternate main transmitters. The licensee of a television broadcast station may be licensed for alternate main transmitters provided that a technical need for such alternate transmitters is shown and that the following conditions are met:

(a) Both transmitters are located at the same place.

(b) Both transmitters shall have the same power rating.

(c) Both transmitters shall meet the construction, installation, operation and performance requirements of this subpart.

§ 3.638 Auxiliary transmitter Upon showing that a need exists for the use of auxiliary transmitters in addition to the regular transmitters of a television station, a license therefor may be issued: Provided, That:

(a) Auxiliary transmitters may be installed either at the same location as the main transmitters or at another location.

(b) A licensed operator shall be in control whenever auxiliary transmitters

are placed in operation.

(c) The auxiliary transmitters shall be maintained so that they may be put into immediate operation at any time for the following purposes:

(1) The transmission of the regular programs upon the failure of the main transmitters.

(2) The transmission of regular programs during maintenance or modification work on the main transmitters necessitating discontinuance of their operation for a period not to exceed 5 days.

Note: This includes the equipment changes which may be made without authority as set forth elsewhere in the rules and regulations or as authorized by the Commission by letter or by construction permit. Where such operation is required for periods in excess of 5 days, request therefor shall be in accordance with § 1.324 of the Commission's rules.

(3) Upon request by a duly authorized representative of the Commission.

(d) The auxiliary transmitters shall be tested at least once each week to determine that they are in proper operating condition and that they are adjusted to the proper frequency, except that in the case of operation in accordance with paragraph (c) of this section during any week, the test in that week may be omitted provided the operation under paragraph (c) of this section is satisfactory. A record shall be kept of the time and result of each test. Such records shall be retained for a period of two years.

- (e) The auxiliary transmitters shall be equipped with satisfactory control equipment which will enable the maintenance of the frequency emitted by the station within the limits prescribed by the regulations in this subpart.
- (f) The operating power of an auxillary transmitter may be less than the authorized power of the main transmitters, but in no event shall it be greater than such power.
- § 3.639 Changes in equipment and antenna system. Licensees of television broadcast stations shall observe the following provisions with regard to changes in equipment and antenna system:

(a) No changes in equipment shall be

made:

- (1) That would result in the emission of signals outside of the authorized channel.
- (2) That would result in the external performance of the transmitter, being in disagreement with that prescribed in this subpart.
- (b) Specific authority, upon filing formal application therefor (FCC Form 301 or such other form as is provided therefor) is required for any of the following changes:
- (1) Changes involving an increase or decrease in the power rating of the transmitters.
- (2) A replacement of the transmitters as a whole.
- (3) Change in the location of the transmitting antenna.
- (4) Change in antenna system, including transmission line.
- (5) Change in the power delivered to the antenna.
- (6) Change in frequency control and/or modulation system.
- (c) Other changes, except as above provided for in this section or in the provisions of this subpart, may be made at any time without the authority of the Commission, provided that the Commission shall be promptly notified thereof and such changes shall be shown in the next application for renewal of license.
- \$ 3,640 Acceptability of broadcast transmitters for licensing. (a) In order to facilitate the filing of, and action on, applications for station authorizations, transmitters will be accepted for licensing by the Commission under one of the following conditions:
- (1) A transmitter may be typeaccepted upon the request of any manufacturer of transmitters built in quantity by following the type acceptance procedure set forth in Part 2 of this chapter, provided that the data and information submitted indicates that the transmitter meets the requirements of § 3.687. If accepted, such transmitter will be included on the Commission's "Radio Equipment List, Part A. Television Broadcast Equipment." Applicants specifying transmitters included on such a list need not submit detailed descriptions and diagrams where the correct type number is specified, provided that the equipment proposed is identical with that accepted. Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field offices.

- (2) An application specifying a transmitter not included on the Radio Equipment List, Part A, may be accepted upon the request of a prospective licensee submitting with the application for construction permit a complete description of the transmitter, including the circuit diagram, listing of all tubes used, function of each, multiplication in each stage, plate current and voltage applied to each tube, a description of the oscillator circuit together with any devices installed for the purpose of frequency stabilization and the means of varying output power to compensate for power supply voltage variations. However, if this data has been filed with the Commission by a manufacturer in connection with a request for type acceptance, it need not be submitted with the application for construction permit but may be referred to as "on file." Measurement data for type acceptance made in accordance with subparagraph (1) of this paragraph shall be submitted with the license application.
- (3) A transmitter shown on an instrument of authorization by manufacturer and type number, or as a composite, and which was in use prior to June 30, 1955, may continue to be used by the licensee, his successors or assignees, provided such transmitter continues to comply with the rules and regulations.
- (b) Additional rules with respect to withdrawal of type-acceptance, modification of type-accepted equipment and limitations on the findings upon which type acceptance is based are set forth in Part 2 of this chapter.

#### GENERAL OPERATING REQUIREMENTS

§ 3.651 Time of operation. (a) All television broadcast stations will be licensed for unlimited time operation. Each such station shall maintain a regular program operating schedule as follows: not less than 2 hours daily in any five broadcast days per week and not less than a total of 12 hours per week during the first 18 months of the station's operation; not less than 2 hours daily in any 5 broadcast days per week and not less than a total of 16 hours, 20 hours and 24 hours per week for each successive 6-month period of operation, respectively and not less than 2 hours in each of the 7 days of the week and not less than a total of 28 hours per week thereafter. "Operation" includes the period during which a station is operated pursuant to special temporary authority or during program tests, as well as during the license period. Time devoted to test patterns, or to aural presentations accompanied by the incidental use of fixed visual images which have no substantial relationship to the subject matter of such aural presentations, shall not be considered in computing periods of program service. If, in the event of an emergency due to causes beyond the control of a licensee, it becomes impossible to continue operation, the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified in writing immediately after the emergency develops and immediately after the emergency ceases and operation is resumed.

- (b) Noncommercial educational television broadcast stations are not required to operate on a regular schedule and no minimum number of hours of operation is specified; but the hours of actual operation during a license period shall be taken into consideration in considering the renewal of noncommercial educational television broadcast licenses.
- (c) (1) The aural transmitter of a television station shall not be operated separately from the visual transmitter except for the following purposes:

(i) For actual tests of station equipment or actual experimentation in ac-

- cordance with § 3.666; and
  (ii) For emergency "fills" in case of visual equipment failure or unscheduled and unavoidable delays in presenting visual programs. In such situations the aural transmitter may be used to advise the audience of difficulties and to transmit for a short period program material of such nature that the audience will be enabled to remain tuned to the station: for example, music or news accompanying a test pattern or other visual presentation.
- (2) During periods of transmission of a test pattern on the visual transmitter of a television station, aural transmission shall consist only of a single tone or series of variable tones. During pariods when still pictures or slides are employed to produce visual transmissions which are accompanied by aural transmissions, the aural and visual transmissions shall be integral parts of a program or announcement and shall have a substantial relationship to each other: Provided, That nothing herein shall preclude the transmission of a test pattern, still pictures or slides for the following purposes and periods:
- (i) To accompany aural announcements of the station's program schedule and aural news broadcasts or news commentaries, for a total period not to exceed one hour in any broadcast day.
- (ii) To accompany aural transmissions for a period of time not to exceed fifteen minutes immediately prior to the commencement of a programming schedule.

Examples. (1) Duplication of AM or FM programs on the aural transmitter of a television station while the same program is broadcast on the visual transmitter (i. e., a "simulcast") is consistent with this paragraph.

(2) Duplication of AM or FM programs on the aural transmitter of a television station while a test pattern is broadcast on the visual transmitter is not consistent with this paragraph, except for the specific purposes and periods specified in paragraph (c) (2).

(3) A travel lecture in which the words of the lecturer are broadcast simultaneously with still pictures or slides of scenes illustrating the lecture, and a newscast in which the words of the newscaster are broadcast elmultaneously with still pictures or slides of the news events, are examples of programs in which the aural and visual transmissions are integral parts of the same program having a substantial relationship to each other, within the meaning of paragraph (c) (2). Mood mucle unrelated to the visual transmission is not consistent with this para-

(4) The broadcast of a test pattern accompanied by a musical composition for the purpose of demonstration, sale, installation or orientation of television receivers, or receiving antennas is not consistent with this

paragraph

(5) Music accompanying the transmission of a test pattern upon which is visually imposed a moving text consisting of continuous program material, such as a running newscast or news commentary, is consistent with this paragraph.

(6) Music accompanying the transmission

(6) Music accompanying the transmission of a test pattern upon which is visually imposed a clock indicating the time of day, or a text that is changed at spaced intervals, is not consistent with this paragraph.

§ 3.652 Station identification. (a) A licensee of a television broadcast station shall make station identification announcement (call letters and location) at the beginning and ending of each time of operation and during the operation on the hour. The announcement at the beginning and ending of each time of operation shall be by both aural and visual means. Other announcements may be by either aural or visual

means.

(b) Identification announcements during operation need not be made when to make such announcement would interrupt a single consecutive speech, play, religious service, symphony concert, or any type of production. In such cases, the identification announcement shall be made at the first interruption of the entertainment continuity and at the conclusion thereof.

§ 3.653 Mechanical reproductions.
(a) Each program which consists in whole or in part of one or more mechanical reproductions, either visual or aural, shall be accompanied by an appropriate announcement to that effect either at the beginning or end of such reproduction or at the beginning or end of the program in which such reproduction is used. No such announcement shall be required where a mechanical reproduction is used for background music, sound effects, station identification, program identification (theme music of short duration) or identification of sponsorship of the program proper.

(b) The exact form of identifying announcement is not prescribed but the language shall be clear and in terms commonly used and understood. The licensee shall not attempt affirmatively to create the impression that any program being broadcast by mechanical reproduction consists of live talent.

§ 3.654 Sponsored programs, announcement. (a) In the case of each program for the broadcasting of which money, services, or other valuable consideration is either directly or indirectly paid or promised to, or charged or received by, any television broadcast station, the station broadcasting such program shall make, or cause to be made, an appropriate announcement that the program is sponsored, paid for, or furnished, either in whôle or in part.

(b) In the case of any political program or any program involving the discussion of public controversial issues for which any films, records, transcriptions, talent, scripts, or other material or services of any kind are furnished, either directly or indirectly, to a station as an inducement to the broadcasting of such program, an announcement shall be

made both at the beginning and conclusion of such program on which such material or services are used that such films, records, transcriptions, talent, scripts, or other material or services have been furnished to such station in connection with the broadcasting of such program: Provided, however That only one such announcement need be made in the case of any such program of 5 minutes' duration or less, which announcement may be made either at the beginning or conclusion of the program.

(c) The announcement required by this section shall fully and fairly disclose the true identity of the person or persons by whom or in whose behalf such payment is made or promised, or from whom or in whose behalf such services or other valuable consideration is received, or by whom the material or services referred to in paragraph (b) of this section are furnished. Where an agent or other person contracts or otherwise makes arrangements with a station on behalf of another, and such fact is known to the station, the announcement shall disclose the identity of the person or persons in whose behalf such agent is acting instead of the name of such agent.

(d) In the case of any program, other than a program advertising commercial products or services, which is sponsored, paid for or furnished, either in whole or in part, or for which material or services referred to in paragraph (b) of this section are furnished, by a corporation, committee, association or other unincorporated group, the announcement required by this section shall disclose the name of such corporation, committee, association or other unincorporated group. In each such case the station shall require that a list of the chief executive officers or members of the executive committee or of the board of directors of the corporation, committee, association or other unincorporated group shall be made available for public inspection at one of the television broadcast stations carrying the program.

(e) In the case of programs advertising commercial products or services, an announcement stating the sponsor's corporate or trade name or the name of the sponsor's product, shall be deemed sufficient for the purposes of this section and only one such announcement need be made at any time during the course of the program.

§ 3.655 Rebroadcast. (a) The term "rebroadcast" as used below means reception by radio of the program of a television broadcast station, and the simultaneous or subsequent retransmission of such program by a broadcast station. The broadcasting of a program relayed by an auxiliary broadcast station licensed to the television broadcast station is not considered a rebroadcast. (As used in this section, program includes any complete program or part thereof.)

(b) The licensee of a television broadcast station may, without further authority of the Commission, rebroadcast the program of a United States television broadcast station, provided the Commission is notified of the call letters of each station rebroadcast and the licensee cer-

tifies that express authority has been received from the licensee of the station originating the program.

Note: The notice and certification of consent shall be given within 3 days of any single rebroadcast, but in case of the regular practice of rebroadcasting certain programs of a television broadcast station several times during a license period, notice and certification of consent shall be given for the ensuing license period with the application for renewal of license, or at the beginning of such rebroadcast practice if begun during a license period.

(c) No licensee of a television broadcast station shall rebroadcast the program of any United States radio station not designated in paragraph (b) of this section without written authority having first been obtained from the Commission upon application (informal) accompanied by written consent or certification of consent of the licensee of the station originating the program.

NOTE: By Order No. 82, dated and effective June 24, 1941, until further order of the Commission, § 3.655 (c) is suspended only insofar as it requires prior written authority of the Commission for the rebroadcasting of programs originated for that express purpose by U. S. Government radio stations.

§ 3.656 Lotteries. (a) An application for construction permit, license, renewal of license, or any other authorization for the operation of a broadcast station, will not be granted where the applicant proposes to follow or continue to follow a policy or practice of broadcasting or permitting "the broadcasting of, any advertisement of or information concerning any lottery, gift enterprise, or similar scheme, offering prizes dependent in whole or in part upon lot or chance, or any list of the prizes drawn or awarded by means of any such lottery, gift enterprise, or scheme, whether said list contains any part or all of such prizes." (See 18 U.S. C. 1304.)

(b) The determination whether a particular program comes within the provisions of paragraph (a) of this section depends on the facts of each case. However, the Commission will in any event consider that a program comes within the provisions of paragraph (a) of this section if in connection with such program a prize consisting of money or thing of value is awarded to any person whose selection is dependent in whole or in part upon lot or chance, if as a condition of winning or competing for such prize, such winner or winners are required to furnish any money or thing of value or are required to have in their possession any product sold, manufactured, furnished or distributed by a sponsor of a program broadcast on the station in question.

§ 3.657 Broadcasts by candidates for public office—(a) Legally qualified candidate. A "legally-qualified candidate" means any person who has publicly announced that he is a candidate for nomination by a convention of a political party or for nomination or election in a primary, special, or general election, municipal, county, state or national, and who meets the qualifications prescribed by the applicable laws to hold the office for which he is a candidate, so that he

may be voted for by the electorate directly or by means of delegates or electors, and who:

(1) Has qualified for a place on the ballot, or

(2) Is eligible under the applicable law to be voted for by sticker, by writmg in his name on the ballot, or other method, and (i) has been duly nominated by a political party which is commonly known and regarded as such, or (ii) makes a substantial showing that he is a bona fide candidate for nomination or office, as the case may be.

(b) General requirements. No station licensee is required to permit the use of its facilities by any legally qualified candidate for public office, but if any licensee shall permit any such candidate to use its facilities, it shall afford equal opportunities to all other such candidates for that office to use such facilities: Provided, That such licensee shall have no power of censorship over the material broadcast by any such candidate.

Rates and practices, (1) The (c) rates, if any, charged all such candidates for the same office shall be uniform and shall not be rebated by any means direct or indirect. A candidate shall, in each case, be charged no more than the rate the station would charge if the candidate were a commercial advertiser whose advertising was directed to promoting its business within the same area as that encompassed by the particular office for which such person is a candidate. All discount privileges otherwise offered by a station to commercial advertisers shall be available upon equal terms to all candidates for public office.

(2) In making time available to candidates for public office no licensee shall make any discrimination between candidates in charges, practices, regulations, facilities, or services for or in connection with the service rendered pursuant to this part, or make or give any preference to any candidate for public office or subject any such candidate to any prejudice or disadvantage; nor shall any licensee make any contract or other agreement which shall have the effect of permitting any legally qualified candidate for any public office to broadcast to the exclusion of other legally qualified candidates for the same public office.

(d) Inspection of records. Every licensee shall keep and permit public inspection of a complete record of all requests for broadcast time made by or on behalf of candidates for public office. together with an appropriate notation showing the disposition made by the licensee of such requests, and the charges made, if any, if request is granted. Such records shall be retained for a period of two years.

§ 3.658 Affiliation agreements—(a) Exclusive affiliation of station. No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organiza-tion under which the station is prevented or hindered from, or penalized for, broadcasting the programs of any other network organization. (The term "network organization" as used herein

includes national and regional network organizations. See ch. VII, J, of Report on Chain Broadcasting.)

(b) Territorial exclusivity. No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which prevents or hinders another broadcast station located in the same community from broadcasting the network's programs not taken by the former station, or which prevents or hinders another broadcast station located in a different community from broadcasting any program of the network organization. This section shall not be construed to prohibit any contract, arrangement, or understanding between a station and a network organization pursuant to which the station is granted the first call in its community upon the programs of the network organization. As employed in this paragraph, the term "community" is defined as the community specified in the instrument of authorization as the location of the station.

(c) Term of affiliation. No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which provides, by original terms, provisions for renewal, or otherwise for the affiliation of the station with the network organization for a period longer than 2 years: Provided. That a contract, arrangement, or understanding for a period up to 2 years may be entered into within 6 months prior to the commence-

ment of such period.

(d) Option time. No license shall be granted to a television broadcast station which options for network programs any time subject to call on less than 56 days' notice, or more time than a total of 3 hours within each of four segments of the broadcast day, as herein described. The broadcast day is divided into four segments, as follows: 8 a.m. to 1 p. m., 1 p. m. to 6 p. m., 6 p. m. to 11 p. m., 11 p. m. to 8 a. m. (These segments are to be determined for each station in terms of local time at the location of the station but may remain constant throughout the year regardless of shifts from standard to daylight saving time or vice versa.') Such options may not be exclusive as against other network organizations and may not prevent or hinder the station from optioning or selling any or all of the time covered by the option, or other time, to other network organizations.

Note 1: As used in this section, an option is any contract, arrangement, or understanding, express or implied, between a station and a network organization which prevents or hinders the station from scheduling programs before the network agrees to utilize the time during which such programs are scheduled, or which requires the station to clear time already scheduled when the network organization seeks to utilize the time.

Note 2: All time options permitted under this section must be specified clock hours, expressed in terms of any time system cet forth in the contract agreed upon by the station and network organization. Shifts from daylight saving to standard time or vice versa may or may not shift the specified

hours correspondingly as agreed by the station and network organization.

(e) Right to reject programs. No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which (1) with respect to programs offered pursuant to an affiliation contract, prevents or hinders the station from rejecting or refusing network programs which the station reasonably believes to be unsatisfactory or unsuitable; or which (2) with respect to network programs so offered or already contracted for, prevents the station from rejecting or refusing any program which, in its opinion, is contrary to the public interest, or from substituting a program of outstanding local or national importance.

(f) Network ownership of stations. No license shall be granted to a network organization, or to any person directly or indirectly controlled by or under common control of a network organization, for a television broadcast station in any locality where the existing television broadcast stations are so few or of such unequal desirability (in terms of coverage, power, frequency, or other related matters) that competition would be substantially restrained by such licensing. (The word "control" as used in this section, is not limited to full control but includes such a measure of control as would substantially affect the availability of the station to other networks.)

(g) Dual network operation. No license shall be issued to a television broadcast station affiliated with a network organization which maintains more than one network of television broadcast stations: Provided, That this section shall not be applicable if such networks are not operated simultaneously, or if there is no substantial overlap in the territory served by the group of stations

comprising each such network.

(h) Control by networks of station rates. No license shall be granted to a television broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, fixing or altering its rates for the sale of broadcast time for other than the network's programs.

§ 3.659 Special rules relating to contracts providing for reservation of time upon sale of a station. (a) No license, renewal of license, assignment of license, or transfer of control of a corporate licensee shall be granted or authorized to a television broadcast station which has a contract, arrangement or understanding, express or implied, pursuant to which, as consideration or partial consideration for the assignment of license or transfer of control, the assignor of a station license or the transferor of stock, where transfer of a corporate licensee is involved, or the nominee of such assignor or transferor retains any right of reversion of the license or any right to the reassignment of the license in the future. or reserves the right to use the facilities of the station for any period whatsoever.

(b) In the case of assignment of license or transfer of control of a corporate licensee approved by the Commission before the effective date of this section. February 15, 1949, involving a contract, arrangement or understanding of the type covered by paragraph (a) of this section and the existence and terms of which were fully disclosed to the Commission at the time of execution, the Commission will give consideration to the issuance of a license despite the existence of such contract, arrangement or understanding, if the parties thereto modify such contract within 6 months from the effective date of this section. Such modifications will be considered on the facts of each case but no such modification will be approved unless the modified contract contains at least the following provisions:

(1) A maximum limitation of the time subject to reservation so that no more than 12 hours per week shall be subject to reservation, of which no more than 4 hours shall be on any given day.

(2) A clause providing that the licensee reserves the right to reject or refuse programs which he reasonably believes to be unsatisfactory or unsuitable or for which, in his opinion, a program of outstanding local or national importance should be substituted, but provision may be made for the substitution of other television time for programs so rejected or for the payment at the station card rate for the time made unavailable.

(3) A prohibition against the resale or reassignment of any of the broadcast time reserved by such modified contract.

(4) An express negation of any right with respect to reversion or reassignment of license.

(5) An express provision setting forth a definite expiration date of the contract; arrangement or understanding. Such expiration date shall not extend beyond February 15, 1964, and shall in no event extend beyond the expiration date originally provided for in any such contract, agreement or understanding, in the event that such expiration date is a date prior

to February 15, 1964.

(6) An express provision giving to the licensee the right to terminate the contract, arrangement or understanding for substantial cause, including, but not limited to, the assignment of license or the transfer of control of a corporate licensee, consistent disagreement over programs between the parties, or the acquisition of a network affiliation by the licensee, upon the payment of a lump sum or periodic payments, and providing that the amount initially fixed shall thereafter decrease as the amount of time reserved is decreased by performance of the contract. Any such payment should not be so unduly large as to constitute in practice an effective deterrent to the licensee exercising the right. In determining whether the amount is unduly large, the Commission will consider the amount by which consideration in return for the transfer of the station was decreased by reason of the reservation of time or the present value of the television time still reserved and unused as of the date of the exercise of the right of termination.

§ 3.660 Station license, posting of. The original of each station license shall be posted in the transmitter room.

§ 3.661 Operator requirements. One or more licensed radio-telephone first class operators shall be on duty at the place where the transmitting apparatus of each station is located and in actual charge thereof whenever it is being operated. The original license (or FCC Form 759) of each station operator shall be posted at the place where he is on duty. The licensed operator on duty and in charge of a television broadcast transmitter may, at the discretion of the licenseee, be employed for other duties or for the operation of another station or stations in accordance with the class of operator's license which he holds and by the rules and regulations governing such stations. However, such duties shall in nowise interfere-with the operation of the broadcast transmitter.

§ 3.662 Antenna structure, marking and lighting. Where an antenna structure(s) is required to be painted or lighted see § 17.37, Inspection of tower lights and associated control equipment; § 17.39, Cleaning and repainting; § 17.40, Time when lights shall be exhibited; § 17.41, Spare lamps; and § 17.42, Lighting equipment; of Part 17 of this chapter (Construction, Marking and Lighting of Antenna Structures)

§ 3.663 Logs; maintenance of. The licensee or permittee of each television, station shall maintain program and operating logs and shall require entries to be made as follows:

(a) In the program log:

(1) An entry of the time each station identification announcement (call letters and location) is made.

(2) An entry briefly describing each program broadcast, such as "music," "drama," "speech," etc., together with the name or title thereof and the sponsor's name, with the time of the beginning and ending of the complete program. If a mechanical reproduction, either visual or aural, is used, the entry shall show the exact nature thereof and the time it is announced as a mechanical reproduction. If a speech is made by a political candidate, the name and political affiliations of such speaker shall be entered.

(3) An entry showing that each sponsored program broadcast has been announced as sponsored, paid for, or furnished by the sponsor; or that the broadcast is under the auspices of a nonprofit educational organization other than the licensee or permittee.

(4) An entry showing, for each program of network origin, the name of the network originating the program.

(b) In the operating log:

(1) An entry of the time the station begins to supply power to the antenna, and the time it stops.

(2) An entry of the time the program begins and ends,

(3) An entry of each interruption to the carrier wave, its cause, and duration.

(4) An entry of the following each 30 minutes:

(i) Operating constants of last radio stage of the aural transmitter (total plate current and plate voltage)

(ii) Transmission line meter readings

for both transmitters.

(iii) Frequency monitor readings.
(5) Log of experimental operation during experimental period (if regular operation is maintained during this period, the above logs shall be kept)

(i) A log must be kept of all operation during the experimental period. If the entries required above are not applicable thereto, then the entries shall be made so as to describe the operation fully.

(c) Where an antenna structure(s) is required to be illuminated see § 17.38, Recording the tower light inspections in the station record, of Part 17 of this chapter (Construction, Marking and Lighting of Antenna Structures)

§ 3.664 Logs; retention of, etc.—(a) Logs; retention of. Logs of television broadcast stations shall be retained by the licensee or permittee for a period of two years: Provided, however, That logs involving communications incident to a disaster or which include communications incident to or involved in an investigation by the Commission and concerning which the licensee or permittee has been notified, shall be retained by the licensee or permittee until he is specifically authorized in writing by the Commission to destroy them: Provided further That logs incident to or involved in any claim or complaint of which the licensee or permittee has notice shall be retained by the licensee or permittee until such claim or complaint has been fully satisfied or until the same has been barred by statute limiting the time for the filing of suits upon such claims.

(b) Logs, by whom kept. Each log, shall be kept by the person or persons competent to do so, having actual knowledge of the facts required, who shall sign the log when starting duty and again when going off duty. The logs shall be made available upon request by an authorized representative of the Commis-

sion.

(c) Log form. The log shall be kept in an orderly manner, in suitable form, and in such detail that the data required for the particular class of station concerned are readily available. Key letters or abbreviations may be used if proper meaning or explanation is contained elsewhere in the log.

(d) Correction of logs. No log or portion thereof shall be erased, obliterated, or wilfully destroyed within the period of retention provided by the rules. Any necessary correction may be made only by the person originating the entry who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction.

(e) Rough logs. Rough logs may be transcribed into condensed form, but in such case the original log or memoranda and all portions thereof shall be preserved and made a part of the complete

log.

§ 3.665 Station inspection. The licensee of a television broadcast station shall make the station available for inspection by representatives of the Commission at any reasonable hour.

§ 3.666 Experimental operation. Television broadcast stations may (upon informal application) conduct technical experimentation directed to the improvement of technical phases of operation and for such purposes may utilize a signal other than the standard television signal subject to the following conditions:

(a) That the licensee complies with the provisions of § 3.651 with regard to the minimum number of hours of transmission with a standard television signal.

(b) That no transmissions are radiated outside of the authorized channel and subject to the condition that no interference is caused to the transmissions of a standard television signal by other

television broadcast stations.

(c) No charges either direct or ındirect shall be made by the licensee of a television broadcast station for the production or transmission of programs when conducting technical experimenta-

§ 3.667 Discontinuance of operation. The licensee of each station shall notify the Commission in Washington, D. C., and the Engineer in Charge of the radio district where such station is located of permanent discontinuance of operation at least two days before operation is discontinued. The licensee shall, in addition, immediately forward the station license and other instruments of author--ization to the Washington, D. C., office of the Commission for cancellation.

Frequency tolerance. The carrier frequency of the visual transmitter shall be maintained within ±1000 cycles of the authorized carrier frequency.

(b) The center frequency of the aural transmitter shall be maintained 4.5 megacycles, ±1000 cycles, above the visual carrier frequency.

### TV TECHNICAL STANDARDS

§ 3.681 Definitions.

Amplitude modulation (AM). A system of modulation in which the envelope of the transmitted wave contains a component similar to the wave form of the signal to be transmitted.

Antenna height above average terrain. The average of the antenna heights above the terrain from two to ten miles from the antenna for the eight directions spaced evenly for each 45 degrees of azimuth starting with True North. (In general, a different antenna height will be determined in each direction from the antenna. The average of these various heights is considered the antenna height above the average terrain. In some cases less than 8 directions may be

used. See § 3.684 (d)).

Antenna power gain. The square of the ratio of the root-mean-square free space field intensity produced at one mile in the horizontal plane, in millivolts per meter for one kilowatt antenna input power to 137.6 mv/m. This ratio should be expressed in decibels (db) (If specified for a particular direction, antenna power gain is based on the field strength in that direction only.)

Aspect ratio. The ratio of picture width to picture height as transmitted.

Aural transmitter. The radio equip-ment for the transmission of the aural signal only.

Aural center frequency. (1) The average frequency of the emitted wave when modulated by a sinusoidal signal; (2) the frequency of the emitted wave without modulation.

Blanking level. The level of the signal during the blanking interval, except the interval during the scanning synchronizing pulse and the chrominance subcarrier synchronizing burst.

Chrominance. The colorimetric difference between any color and a reference color of equal luminance, the reference color having a specific chromaticity.

Chrominance subcarrier. The carrier which is modulated by the chrominance information.

Color transmission. The transmission of color television signals which can be reproduced with different values of hue, saturation, and luminance.

Effective radiated power. The product of the antenna input power and the antenna power gain. This product antenna power gain. should be expressed in kilowatts and in decibels above one kilowatt (dbk). (If specified for a particular direction, effective radiated power is based on the antenna power gain in that direction only. The licensed effective radiated power is based on the average antenna power gain

for each horizontal plane direction.)

Field. Scanning through the picture area once in the chosen scanning pattern. In the line interlaced scanning pattern of two to one, the scanning of the alternate lines of the picture area once.

Frame. Scanning all of the picture area once. In the line interlaced scanning pattern of two to one, a frame consists of two flields.

Free space field intensity. The field intensity that would exist at a point in the absence of waves reflected from the earth or other reflecting objects.

Frequency modulation (FM). A system of modulation where the instantaneous radio frequency varies in proportion to the instantaneous amplitude of the modulating signal (amplitude of modulating signal to be measured after pre-emphasis, if used) and the instan-taneous radio frequency is independent of the frequency of the modulating signal.

Frequency swing. The instantaneous departure of the frequency of the emitted wave from the center frequency resulting from modulation.

Interlaced scanning. A scanning process in which successively scanned lines are spaced an integral number of line widths, and in which the adjacent lines are scanned during successive cycles of the field frequency.

Luminance. Luminous flux emitted, reflected, or transmitted per unit solid angle per unit projected area of the source.

Monochrome transmission. The transmission of television signals which can be reproduced in gradations of a single color only.

Negative transmission. Where a decrease in initial light intensity causes an increase in the transmitted power.

Peak power. The power over a radio frequency cycle corresponding in amplitude to synchronizing peaks.

Percentage modulation. As applied to frequency modulation, the ratio of the actual frequency swing to the frequency swing defined as 100 percent modulation, expressed in percentage. For the aural transmitter of television broadcast stations, a frequency swing of  $\pm 25$  kilocycles is defined as 100 percent modulation.

Polarization. The direction of the electric field as radiated from the transmitting antenna.

Reference black level. The level corresponding to the specified maximum excursion of the luminance signal in the black direction.

Reference white level of the luminance signal. The level corresponding to the specified maximum excursion of the luminance signal in the white direction.

Scanning. The process of analyzing successively, according to a predeter-mined method, the light values of picture elements constituting the total picture area.

Scanning line. A single continuous narrow strip of the picture area containing highlights, shadows, and half-tones, determined by the process of scanning.

Standard television signal. A signal which conforms to the television transmission standards.

Synchronization. The maintenance of one operation in step with another.

Television broadcast band. The frequencies in the band extending from 54 to 890 megacycles which are assignable to television broadcast stations. These frequencies are 54 to 72 megacycles (channels 2 through 4), 76 to 88 megacycles (channels 5 and 6) 174 to 216 megacycles (channels 7 through 13) and 470 to 890 megacycles (channels 14 through 83)

Television broadcast station. A station in the television broadcast band transmitting simultaneous visual and aural signals intended to be received by the general public.

Television channel. A band of frequencies 6 megacycles wide in the television broadcast band and designated either by number or by the extreme lower and upper frequencies.

Television transmission standards. The standards which determine the characteristics of a television signal as radiated by a television broadcast station.

Television transmitter. The radio transmitter or transmitters for the transmission of both visual and aural signals.

Vestigial sideband transmission. A system of transmission wherein one of the generated sidebands is partially attenuated at the transmitter and radiated only in part.

Visual carrier frequency. The frequency of the carrier which is modulated by the picture information.

Visual transmitter. The radio equipment for the transmission of the visual signal only..

Visual transmitter power. The peak power output when transmitting a standard television signal,

§ 3.682 Transmission standards and changes—(a) Transmission standards. (1) The width of the television broadcast channel shall be six megacycles per second.

(2) The visual carrier frequency shall be nominally 1.25 mc above the lower boundary of the channel.

(3) The aural center frequency shall be 4.5 mc higher than the visual carrier

frequency.

(4) The visual transmission amplitude characteristic shall be in accordance with the chart designated as Fig. 5 of § 3.699.

(5) The chrominance subcarrier frequency shall be  $3.579545 \text{ mc} \pm 10 \text{ cycles}$ per second with a maximum rate of change not to exceed one tenth cycle per

second per second.

- (6) For monochrome and color transmissions the number of scanning lines per frame shall be 525, interlaced two to one in successive fields. The horizontal scanning frequency shall be 3455 times the chrominance subcarrier frequency. this corresponds nominally to 15,750 cycles per second (with an actual value of. 15,734.264 ± 0.044 cycles per second) The vertical scanning frequency is 3625 times the horizontal scanning frequency. this corresponds nominally to 60 cycles per second (the actual value is 59.94 cycles per second) For monochrome transmissions only, the nominal values of line and field frequencies may be used.
- (7) The aspect ratio of the transmitted television picture shall be 4 units horizontally to 3 units vertically.
- (8) During active scanning intervals, the scene shall be scanned from left to right horizontally and from top to bottom vertically, at uniform velocities.
- (9) A carrier shall be modulated within a single television channel for both picture and synchronizing signals. For monochrome transmission, the two signals comprise different modulation ranges in amplitude, in acordance with the charts designated as Figures 5 and 7 of § 3.699. For color transmission, the two signals comprise different modulation ranges in amplitude except where the chrominance penetrates the synchronizing region and the burst penetrates the picture region, in accordance with the charts designated as Figures 5 and 6 of § 3.699.

(10) A decrease in initial light intensity shall cause an increase in radiated

power (negative transmission)
(11) The reference black level shall be represented by a definite carrier level, independent of light and shade in the

(12) The blanking level shall be transmitted at 75±2.5 percent of the peak carrier level.

(13) The reference white level of the luminance signal shall be 12.5±2.5 percent of the peak carrier level.

(14) The signals radiated shall have horizontal polarization.

(15) An effective radiated power of the aural transmitter not less than 50 percent nor more than 70 percent of the peak radiated power of the visual transmitter shall be employed.

(16) The peak-to-peak variation of transmitter output within one frame of

video signal due to all causes, including hum, noise, and low-frequency response, measured at both scanning synchronizing peak and blanking level, shall not exceed 5 percent of the average scanning synchronizing peak signal amplitude. This provision is subject to change but is considered the best practice under the present state of the art. It will not be enforced pending a further determination thereof.

(17) The reference black level shall be separated from the blanking level by the setup interval, which shall be  $7.5\pm2.5$  percent of the video range from blanking level to the reference white level.

(18) For monochrome transmission, the transmitter output shall vary in substantially inverse logarithmic relation to the brightness of the subject. No tolerances are set at this time. This pro-vision is subject to change but is considered the best practice under the present state of the art. It will not be enforced pending a further determination thereof.

(19) The color picture signal shall correspond to a luminance component transmitted as amplitude modulation of the picture carrier and a simultaneous pair of chrominance components transmitted as the amplitude modulation sidebands of a pair of suppressed subcarriers in quadrature.

(20) Equation of complete color

(i) The color picture signal has the following composition:

$$E_{M} = E_{Y} + \left\{ E_{Q} \sin \left(\omega t + 33^{\circ}\right) + E_{I} \cos \left(\omega t + 33^{\circ}\right) \right\}$$

Where:

$$\begin{array}{l} E_{\mathbf{Q}'} = 0.41(E_B - E_{\mathbf{Y}'}) + 0.48(E_R - E_{\mathbf{Y}'}) \,, \\ E_{\mathbf{I}'} = -0.27(E_B - E_{\mathbf{Y}'}) + 0.74(E_R - E_{\mathbf{Y}'}) \,, \\ E_{\mathbf{Y}'} = 0.30E_R + 0.59E_G + 0.11E_B \end{array}$$

For color-difference frequencies below 500 kc-(see (iii) below), the signal can be represented by:

$$E_M = E_{Y}' + \left\{ \frac{1}{1.14} \left[ \frac{1}{1.78} (E_B - E_{Y}') \sin \omega t + (E_R - E_{Y}') \cos \omega t \right] \right\}$$

(ii) The symbols in subdivision (i) of this subparagraph have the following significance:

EM is the total video voltage, corresponding to the scanning of a particular picture element, applied to the modulator of the picture transmitter.

 $E_Y$  is the gamma-corrected voltage of the monochrome (black-and-white) portion of the color picture signal, corresponding to the given picture element.

Note: Forming of the high frequency portion of the monochrome signal in a different manner is permissible and may in fact be desirable in order to improve the sharpness on saturated colors.

 $E_Q$  and  $E_I$  are the amplitudes of two orthogonal components of the chrominance signal corresponding respectively to narrow-band and wide-band axes.

 $E_R^{-}E_G$  and  $E_B$  are the gamma-corrected voltages corresponding to red, green, and blue signals during the scanning of the given picture element.

 $\omega$  is the angular frequency and is  $2\pi$  times the frequency of the chrominance subcarrier.

The portion of each expression between brackets in (i) represents the chrominance subcarrier signal which carries the chrominance information.

The phase reference in the  $E_M$  equation in (i) is the phase of the burst+180° as shown in Figure 8 of § 3.699. The burst corresponds to amplitude modulation of a continuous sine wave.

(iii) The equivalent bandwidth assigned prior to modulation to the color difference signals  $E_{Q'}$  and  $E_{I'}$  are as follows:

Q-channel bandwidth:

At 400 kc less than 2 db down. At 500 kc less than 6 db down.

At 600 kc at least 6 db down. I-channel bandwidth:

At 1.3 mc less than 2 db down. At 3.6 mc at least 20 db down.

(iv) The gamma corrected voltages  $E_{R'}$   $E_{G'}$  and  $E_{B'}$  are suitable for a color picture tube having primary colors with the following chromaticities in the CIE system of specification:

and having a transfer gradient (gamma exponent) of 2.2 associated with each primary color. The voltages  $E_{R'}$ ,  $E_{G'}$ , and  $E_B$ ' may be respectively of the form  $E_R^{1/\gamma}$ ,  $E_G^{1/\gamma}$ , and  $E_B^{1/\gamma}$  although other forms may be used with advances in the state of the art.

NOTE: At the present state of the art it is considered inadvisable to set a tolerance on the value of gamma and correspondingly this portion of the specification will not be enforced.

(v) The radiated chrominance subcarrier shall vanish on the reference white of the scene.

NOTE: The numerical values of the signal specification assume that this condition will be reproduced as CIE Illuminant O (x=0.310,

(vi)  $E_{Y}'$   $E_{Q}'$ ,  $E_{I}'$ , and the components of these signals shall match each other in time to 0.05 µsecs.

(vii) The angles of the subcarrier measured with respect to the burst phase, when reproducing saturated primaries and their complements at 75 percent of full amplitude, shall be within ±10° and their amplitudes shall be within ±20 percent of the values specified above. The ratios of the measured amplitudes of the subcarrier to the luminance signal for the same saturated primaries and their complements shall fall between the limits of 0.8 and 1.2 of the values specified for their ratios. Closer tolerances may prove to be practicable and desirable with advance in the art.

(b) Changes in transmission stand-ards. The Commission will consider the question whether a proposed change or modification of transmission standards adopted for television would be in the public interest, convenience and necessity, upon petition being filed by the person proposing such change or modification, setting forth the following:

(1) The exact character of the change or modification proposed:

(2) The effect of the proposed change or modification upon all other transmission standards that have been adopted by the Commission for television broadcast stations;

(3) The experimentation and field tests that have been made to show that the proposed change or modification accomplishes an improvement and is technically feasible:

(4) The effect of the proposed change or modification in the adopted standards upon operation and obsolescence of

(5) The change in equipment required in existing television broadcast stations for incorporating the proposed change or modification in the adopted standards; and

(6) The facts and reasons upon which the petitioner bases his conclusion that the proposed change or modification would be in the public interest, convenience, and necessity.

Should a change or modification in the transmission standards be adopted by the Commission, the effective date thereof will be determined in the light of the considerations mentioned in subparagraph (4) of this paragraph.

§ 3.683 Field intensity contours. (a) In the authorization of television broadcast stations, two field intensity contours are considered. These are specified as Grade A and Grade B and indicate the approximate extent of coverage over average terrain in the absence of interference from other television stations. Under actual conditions, the true coverage may vary greatly from these estimates because the terrain over any specific path is expected to be different from the average terrain on which the field strength charts were based. The required field intensities, F (50, 50) in decibels above one microvolt per meter (dbu) for the Grade A and Grade B contours are as follows:

Note: It should be realized that the F (50, 50) curves when used for Channels 14-83 are not based on measured data at distances beyond about 30 miles. Theory would indicate that the field intensities for Channels 14-83 should decrease more rapidly with distance beyond the horizon than for Channels 2-6. and modification of the curves for Channels 14-83 may be expected as a result of measurements to be made at a later date. For these reasons, the curves should be used with appreciation of their limitations in estimating levels of field intensity. Further, the actual extent of service will usually be less than indicated by these estimates due to interference from other stations. Because of these factors, the predicted field intensity contours give no assurance of service to any specific percentage of receiver locations within the distances indicated. In licensing proceedings these variations will not be considered.

	Grade A (dbu)	Grade B (dbu)
Channels 2-6	63 71 74	47 26 64

(b) The field intensity contours provided for herein shall be considered for the following purposes only.

(1) In the estimation of coverage resulting from the selection of a particular transmitter site by an applicant for a television station.

(2) In connection with problems of coverage arising out of application of § 3.636.

(3) In connection with problems of coverage arising out of application of § 3.658 (b)

(4) In determining compliance with § 3.685 (a) concerning the minimum field intensity to be provided over the principal community to be served.

§ 3.684 Prediction of coverage. (a) All predictions of coverage made pursuant to this paragraph shall be made without regard to interference and shall be made only on the basis of estimated field intensities. The peak power of the visual signal is used in making predictions of coverage.

(b) Predictions of coverage shall be made only for the same purposes as relate to the use of field intensity contours

as specified in § 3.683 (b).

(c) In predicting the distance to the field intensity contours, the F (50, 50) field intensity charts (Figures 10 and 11 of § 3.699) shall be used. If the 50 percent field intensity is defined as that value exceeded for 50 percent of the time, these F (50, 50) charts give the cstimated 50 percent field intensities exceeded at 50 percent of the locations in decibels above one microvolt per meter. The charts are based on an effective power of one kilowatt radiated from a half-wave dipole in free space, which produces an unattenuated field strength at one mile of about 103 db above one microvolt per meter (137.6 millivolts per meter) To use the charts for other powers, the sliding scale acsociated with the charts should be trimmed and used as the ordinate scale. This sliding scale is placed on the charts with the appropriate gradation for power in line with the horizontal 40 db line on the charts. The right edge of the scale is placed in line with the appropriate antenna height gradations, and the charts then become direct reading (in uv/m and in db above 1 uv/m) for this power and antenna height. Where the antenna height is not one of those for which a scale is provided, the signal strength or distance is determined by interpolation between the curves connecting the equidistant points. Dividers may be used in lieu of the sliding scale. In predicting the distance to the Grade A and Grade B field intensity contours, the effective radiated power to be used is that in the horizontal plane in the pertinent direction. In predicting other field intensities over areas not in the horizontal plane, the effective radiated power to be used is the power in the direction of such areas; the appropriate vertical plane radiation pattern must, of course, be considered in determining this power.

(d) The antenna height to be used with these charts is the height of the radiation center of the antenna above the average terrain along the radial in question. In determining the average

elevation of the terrain, the elevations between 2 and 10 miles from the antenna site are employed. Profile graphs shall be drawn for 8 radials beginning at the antenna site and extending 10 miles therefrom. The radials should be drawn for each 45 degrees of azimuth starting with True North. At least one radial must include the principal community to be served even though such community may be more than 10 miles from the antenna site. However, in the event none of the evenly spaced radials include the principal community to be served and one or more such radials are drawn in addition to the 8 evenly spaced radials, such additional radials shall not be employed in computing the antenna height above average terrain. Where the 2 to 10 mile portion of a radial extends in whole or in part over large bodies of water as specified in paragraph (e) of this section or extends over foreign territory but the Grade B intensity contour encompasses land area within the United States beyond the 10 mile portion of the radial, the entire 2 to 10 mlle portion of the radial shall be included in the computation of antenna height above average terrain. However, where the Grade B contour does not so encompass United States land area and (1) the entire 2 to 10 mile portion of the radial extends over large bodies of water or foreign territory, such radial shall be completely omitted from the computation of antenna height above average terrain, and (2) where a part of the 2 to 10 mile portion of a radial extends over large bodies of water or over foreign territory, only that part of the radial extending from the 2 mile sector to the outermost portion of land area within the United States covered by the radial shall be employed in the computation of antenna height above average terrain. The profile graph for each radial should be plotted by contour intervals of from 40 to 100 feet and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. In instances of very rugged terrain where the use of contour intervals of 100 feet would result in several points in a short distance, 200- or 400foot contour intervals may be used for such distances. On the other hand, where the terrain is uniform or gently sloping the smallest contour interval indicated on the topographic map (see paragraph (g) of this section) should be used, although only relatively few points may be available. The profile graphs should indicate the topography accurately for each radial, and the graphs should be plotted with the distance in miles as the abscissa and the elevation in feet above mean sea level as the ordinate. The profile graphs should indicate the source of the topographical data employed. The graph should also show the elevation of the center of the radiating system. The graph may be plotted either on rectangular coordinate paper or on special paper which shows the curvature of the earth. It is not necessary to take the curvature of the earth into consideration in this procedure, as this factor is taken care

of in the charts showing signal intensi-The average elevation of the 8mile distance between 2 and 10 miles from the antenna site should then be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded for 50 percent of the distance) in sectors and averaging those values.

Note 1. This paragraph does not apply to any application designated for hearing in which the engineering portions have been heard or the engineering exhibits exchanged' prior to June 1, 1953, the effective date of the amendment of this subsection unless the subsection as amended would materially

affect the outcome of the hearing.

Note 2: The Commission will, upon a proper showing by an existing station that the application of this rule will result in an unreasonable power reduction in relation to other stations in close proximity, consider requests for adjustment in power on the basis of a common average terrain figure for the stations in question as determined by the Commission.

(e) In instances where it is desired to determine the area in square miles within the Grade A and Grade B field intensity contours, the area may be determined from the coverage map by planimeter or other approximate means; in computing such areas, exclude (1) areas beyond the borders of the United States, and (2) large bodies of water, such as ocean areas, gulfs, sounds, bays, large lakes, etc., but not rivers.

(f) In cases where the terrain in one or more directions from the antenna site departs widely from the average elevation of the 2 to 10 mile sector, the prediction method may indicate contour distances that are different from what may be expected in practice. For example, a mountain ridge may indicate the practical limit of service although the prediction method may indicate otherwise. In such cases the prediction method should be followed, but a supplemental showing may be made concerning the contour distances as determined by other means. Such supplemental showing should describe the procedure employed and should include sample calculations. Maps of predicted coverage should include both the coverage as predicted by the regular method and as predicted by a supplemental method. When measurements of area are required, these should include the area obtained by the regular prediction method and the area obtained by the supplemental method. In directions where the terrain is such that negative antenna heights or heights below 100 feet for the 2 to 10 mile sector are obtained, a supplemental showing of expected coverage must be included together with a description of the method employed in predicting such coverage. In special cases, the Commission may require additional information as to terrain and coverage.

(g) In the preparation of the profile graphs previously described, and in determining the location and height above sea level of the antenna site, the elevation or contour intervals shall be taken from the United States Geological Sur-Topographic Quadrangle Maps,

United States Army Corps of Engineers maps or Tennessee Valley Authority maps, whichever is the latest, for all areas for which such maps are available. If such maps are not published for the area in question, the next best topographic information should be used. Topographic data may sometimes be obtained from State and municipal agencies. Data from Sectional Aeronautical Charts (including bench marks) or railroad depot elevations and highway elevations from road maps may be used where no better information is available. In cases where limited topographic data is available, use may be made of an altimeter in a car driven along roads extending generally radially from the transmitter site. Ordinarily the Commission will not require the submission of topographical maps for areas beyond 15 miles from the antenna site, but the maps must include the principal community to be served. If it appears necessary, additional data may be requested. United States Geological Survey Topographic Quadrangle Maps may be obtained from the Department of the Interior, Geological Survey, Washington, D. C. Sectional Aeronautical Charts are available from the Department of Commerce, Coast and Geodetic Survey, Washington, D. C.

§ 3.685 Transmitter location and antenna system. (a) The transmitter location shall be chosen so that, on the basis of the effective radiated power and antenna height above average terrain employed, the following minimum field intensity in decibels above one microvolt per meter (dbu) will be provided over the entire principal community to be served:

Channels 2-6	Channels 7-13	Channels 14-83
74 dbu	77 dbu	80 dbu

(b) Location of the antenna at a point of high elevation is necessary to reduce to a minimum the shadow effect on propagation due to hills and buildings which may reduce materially the intensity of the station's signals. In general, the transmitting antenna of a station should be located at the most central point at the highest elevation available. To provide the best degree of service to an area, it is usually preferable to use a high antenna rather than a low antenna with increased transmitter power. The location should be so chosen that line-ofsight can be obtained from the antenna over the principal community to be served; in no event should there be a major obstruction in this path. The antenna must be constructed so that it is as clear as possible of surrounding buildings or objects that would cause shadow problems. It is recognized that topoggraphy, shape of the desired service area, and population distribution may make the choice of a transmitter location difficult. In such cases, consideration may be given to the use of a directional antenna system, although it is generally preferable to choose a site where a nondirectional antenna may be employed.

(c) In cases of questionable antenna locations it is desirable to conduct propagation tests to indicate the field intensity expected in the principal community to be served and in other areas, particularly where severe shadow problems may be expected. In considering applications proposing the use of such locations, the commission may require site tests to be made. Such tests should be made in accordance with the measurement procedure hereafter described, and full data thereon must be supplied to the Commission. Test transmitters should employ an antenna having a height as close as possible to the proposed antenna height, using a balloon or other support if necessary and feasible. Information concerning the authorization of site tests may be obtained from the Commission upon request.

(d) Present information is not suffi-ciently complete to establish "blanket areas" of television broadcast stations. A "blanket area" is that area adjacent to a transmitter in which the reception of other stations is subject to interference due to the strong signal from this station. The authorization of sta-tion construction in areas where blanketing is found to be excessive will be on the basis that the applicant will assume full responsibility for the adjustment of reasonable complaints arising from ex-cessively strong signals of the applicant's station or take other corrective action.

(e) A directional antenna is considered to be an antenna that is designed or altered for the purpose of obtaining a noncircular radiation pattern. Directional antennas may not be used for the purpose of reducing minimum mileage separation requirements but may be employed for the purpose of improving service or for the purpose of using a particular site; however, directional antennas with a ratio of minimum to maximum radiation in the horizontal plane of more than 10 decibels will not be permitted.

(f) Applications proposing the use of directional antenna systems must be accompanied by the following:

(1) Complete description of the proposed antenna system.

(2) Orientation of array with respect to true north; time phasing of fields from elements (degrees leading or lagging) space phasing of elements (in feet and degrees), and ratio of fields from elements.

(3) Horizontal and vertical plane radiation patterns showing the free space field intensity in millivolts per meter at 1 mile and the effective radiated power, in dbk, for each direction. The method by which the radiation patterns were computed or measured shall be fully described, including formulas used, equipment employed, sample calculations and tabulations of data. Sufficient vertical plane patterns shall be included to indicate clearly the radiation characteristics of the antenna above and below the horizontal plane. The horizontal plane pattern shall be plotted on polar coordinate paper with reference to true north. The vertical plane patterns shall be plotted on rectangular coordinate paper with reference to the horizontal plane.

(4) Name, address, and qualifications of the engineer making the calculations.

- (g) Applications proposing the use of television broadcast antennas within 200 feet of other television broadcast antennas operating on a channel within 20 percent in frequency of the proposed channel, or proposing the use of television broadcast antennas on Channels 5 or 6 within 200 feet of FM broadcast antennas, must include a showing as to the expected effect, if any, of such proximate operation.
- (h) Where simultaneous use of antennas or antenna structures is proposed, the following provisions shall apply
- (1) In cases where it is proposed to use a tower of a standard broadcast station as a supporting structure for a television broadcast antenna, an appropriate application for changes in the radiating system of the standard broadcast station must be filed by the licensee thereof. A formal application (FCC Form 301) will be required if the proposal involves substantial change in the physical height or radiation characteristics of the standard broadcast antennas; otherwise an informal application will be acceptable. (In case of doubt, an informal application (letter) together with complete engineering data should be submitted.) An application may be required for other classes of stations when the tower is to be used in connection with a television station.
- (2) When the proposed television antenna is to be mounted on a tower in the vicinity of a standard broadcast directional array and it appears that the operation of the directional antenna system may be affected, an engineering study must be filed with the television application concerning the effect of the television antenna on the directional pattern. Readjustment and field intensity measurements of the standard broadcast station may be required fol-lowing construction of the television antenna.
- (i) The provisions of Part 17 of this chapter shall govern the construction, marking and lighting requirements of antenna structures used by television broadcast stations. In the event a common tower is used by two or more licensees or permittees for antenna and/or antenna supporting purposes, the licensee or permittee who is owner of the tower shall assume full responsibility for the installation and maintenance of any painting and/or lighting requirements. In the event of shared ownership, one licensee or permittee shall assume such responsibility and advise the Commission accordingly.
- § 3.686 Measurements for rule making purposes and upon request of the Commission. (a) Except as provided for in § 3.612, television broadcast stations shall not be protected against any type of interference or propagation effect. Persons desiring to submit testimony, evidence, or data to the Commission for the purpose of showing that the technical standards contained in this subpart do not properly reflect any given types of interference or propagation effects may do so only in appropriate rule making proceedings to amend such technical standards. Persons making field intensity measurements for formal sub-

mission to the Commission in rule making proceedings, or making such measurements upon the request of the Commission, should comply with the procedure for making such measure-

ments as outlined below.

(b) Measurements made to determine field intensities of television broadcast stations should be made with mobile equipment along roads which are as close and similar as possible to the radials showing topography which were submitted with the application for construction permit. Cluster and spot measurements may also be submitted, if accompanied by a complete showing of the procedures employed. Suitable measuring equipment and a continuous recording device must be employed, the chart of which is either directly driven from the speedometer of the automobile in which the equipment is mounted or co arranged that distances and identifying landmarks can be readily noted. The measuring equipment must be calibrated against recognized standards of field intensity and so constructed that it will maintain an acceptable accuracy of measurement while in motion or when stationary. The equipment should be so operated that the recorder chart can be calibrated directly in field intensity in order to facilitate analysis of the chart. The receiving antenna must be horizontally polarized and should be nondirectional.

(c) Mobile measurements should be made with a minimum chart speed of 3 inches per mile and preferably 5 or 6 inches per mile. Locations shall be noted on the recorder chart as frequently as necessary to fix definitely the relation between the measured field intensity and the location. The time constant of the equipment should be such as to permit adequate analysis of the charts, and the time constant employed shall be shown. Measurements should be made to a point on each radial well beyond the particular contour under investigation.

(d) While making field intensity measurements either the visual or the aural transmitter may be used. If the visual transmitter is used, it is recommended that a black picture be transmitted or that the transmitter be operated at black level without synchronization peaks. Operation at a power somewhat less than black level is permissible but too great a reduction in power is not recommended due to the difficulty of recording weak signals. In any event, an appropriate factor shall be used to convert the readings obtained to the field strength that would exist on synchronization peaks while operating at the authorized power.

(e) After the measurements are completed, the recorder chart should be divided into not less than 15 sections on each equivalent radial from the station. The field intensity in each section of the chart should be analyzed to determine the field intensity received 50 percent of the distance (median field) throughout the section, and this median field intensity associated with the corresponding sector of the radial. The field intensity figures must be corrected for a receiving antenna elevation of 30 feet and for any directional effects of the au-

tomobile and receiving antenna not otherwise compensated. This data should be plotted for each radial, using log-log coordinate paper with distance as the abscissa and field intensity as the ordinate. A smooth curve should be drawn through these points (of median fields for all sectors) and this curve used to determine the distance to the desired contour. The distances obtained for each radial may then be plotted on the map of predicted coverage or on polar coordinate paper (excluding water areas, etc.) to determine the service and interference areas of a station.

(f) In certain cases the Commission may desire more information or recordings and in these instances special in-

structions will be issued.

(g) Data obtained in conjunction with field intensity measurements shall be submitted to the Commission in affidavit form in triplicate, including the follow-

ing:

(1) Map or maps showing the roads or points where measurements were made, the service and/or interference areas determined by the prediction method and by the measurements, and any unusual terrain characteristics existing in these areas. The maps, preferably of a type showing topography in the area, should show the Grade A and Grade B field intensity contours.

(2) If a directional transmitting antenna is employed, a diagram on polar coordinate paper showing the predicted free space field intensity in millivolts per meter at 1 mile in all directions.

(3) A full description of the procedures and methods employed, including the type of equipment, the method of installation and operation, and calibration procedures.

(4) Complete data obtained during the survey, including calibration. (Only the original or one photostatic copy of the recording tapes, or representative samples, need be submitted.)

(5) Antenna system and power em-

ployed during the survey.

(6) Name, address, and qualifications of the engineer or engineers making the measurements.

§ 3.687 Transmitters and associated equipment—(a) Visual transmitter. (1) For monochrome transmission only, the overall attenuation characteristics of the transmitter, measured in the antenna transmission line after the vestigial sideband filter (if used), shall not be greater than the following amounts below the ideal demodulated curve. (See Figure 11 of § 3.699.)

2 db at 0.5 mc. 2 db at 1.25 mc. 3 db at 2.0 mc. 6 db at 3.0 mc. 12 db at 3.5 mc.

The curve shall be substantially smooth between these specified points, exclusive of the region from 0.75 to 1.25 mc. Output measurement shall be made with the transmitter operating into a dummy load of pure resistance and the demodulated voltage measured across this load. The ideal demodulated curve is that shown in Figure 11 of § 3.699.

(2) For color transmission, the standard given by subparagraph (1) of this paragraph applies except as modified by the following: A sine wave of 3.58 mc introduced at those terminals of the transmitter which are normally fed the composite color picture signal shall produce a radiated signal having an amplitude (as measured with a diode on the R. F transmission line supplying power to the antenna), which is down 6±2 db with respect to a signal produced by a sine wave of 200 kc. In addition, the amplitude of the signal shall not vary by more than ±2 db between the modulating frequencies of 2.1 and 4.18 mc.

(3) The field strength or voltage of the lower sideband, as radiated or dissipated and measured as described in subparagraph (4) of this paragraph, shall not be greater than —20 db for a modulating frequency of 1.25 mc or greater and in addition, for color, shall not be greater than —42 db for a modulating frequency of 3.579545 mc (the color subcarrier frequency) For both monochrome and color, the field strength or voltage of the upper sideband as radiated or dissipated and measured as described in subparagraph (4) of this paragraph shall not be greater than —20 db for a modulating frequency of 4.75 mc or greater.

Note: Field strength measurements are desired. It is anticipated that these may not yield data which are consistent enough to prove compliance with the attenuation standards prescribed above. In that case, measurements with a dummy load of pure resistance, together with data on the antenna characteristics, shall be taken in place of over-all field measurements.

(4) The attenuation charactertistics of a visual transmitter shall be measured by application of a modulating signal to the transmitter input terminals in place of the normal composite television video signal. The signal applied shall be a composite signal composed of a synchronizing signal to establish peak output voltage plus a variable frequency sine wave voltage occupying the interval between synchronizing pulses. (The "synchronizing signal" referred to in this section means either a standard synchronizing wave form or any pulse that will properly set the peak.) The axis of the sine wave in the composite signal observed in the output monitor shall be maintained at an amplitude 0.5 of the voltage at synchronizing peaks. The amplitude of the sine wave input shall be held at a constant value. This constant value should be such that at no modulating frequency does the maximum excursion of the sine wave, observed in the composite output signal monitor, exceed the value 0.75 of peak output voltage. The amplitude of the 200 kilocycle sideband shall be measured and designated zero db as a basis for comparison. modulation signal frequency shall then be varied over the desired range and the field strength or signal voltage of the corresponding sidebands measured. As an alternate method of measuring, in those cases in which the automatic d-c insertion can be replaced by manual control, the above characteristic may be taken by the use of a video sweep generator and without the use of pedestal synchronizing pulses. The d-c level

shall be set for midcharacteristic operation.

(5) A sine wave, introduced at those terminals of the transmitter which are normally fed the composite color picture signal, shall produce a radiated signal having an envelope delay, relative to the average envelope delay between 0.05 and 0.20 mc, of zero microseconds up to a frequency of 3.0 mc; and then linearly decreasing to 4.18 mc so as to be equal to -0.17 µsecs at 3.58 mc. The tolerance on the envelope delay shall be  $\pm 0.05$  $\mu$ secs at 3.58 mc. The tolerance shall increase linearly to  $\pm 0.1~\mu sec$  down to 2.1 mc, and remain at  $\pm 0.1$  µsec down to 0.2 mc. (Tolerances for the interval of 0.0 to 0.2 mc are not specified at the present time.) The tolerance shall also increase linearly to  $\pm 0.1 \,\mu \text{sec}$  at 4.18 mc.

(6) The radio frequency signal, as radiated, shall have an envelope as would be produced by a modulating signal in conformity with Figures 6 or 7 of \$ 3.699, as modified by vestigial sideband operation specified by Figure 5 of \$ 3.699.

(7) The time interval between the leading edges of successive horizontal pulses shall vary less than one half of one percent of the average interval. However, for color transmissions, § 3.682 (a) (5) and § 3.682 (a) (6) shall be controlling.

(8) The rate of change of the frequency of recurrence of the leading edges of the horizontal synchronizing signals shall be not greater than 0.15 percent per second, the frequency to be determined by an averaging process carried out over a period of not less than 20, nor more than 100 lines, such lines not to include any portion of the blanking interval. However, for color transmissions, § 3.682 (a) (5) and § 3.682 (a) (6) shall be controlling.

(9) For color transmission the transfer characteristic (that is the relationship between the transmitter RF output and video signal input) shall be substantially linear between the reference black and reference white levels.

(b) Aural transmitter (1) The transmitter shall operate satisfactorily with a frequency swing of ±25 kilocycles, which is considered 100 percent modulation. It is recommended, however, that the transmitter be designed to operate satisfactorily with a frequency swing of at least ±40 kilocycles.

(2) The transmitting system (from input terminals of microphone pre-amplifier, through audio facilities at the studio, through telephone lines or other circuits between studio and transmitter, through audio facilities at the transmitter, and through the transmitter, but excluding equalizers for the correction of deficiencies in microphone response) shall be capable of transmitting a band of frequencies from 50 to 15,000 cycles. Pre-emphasis shall be employed in accordance with the impedance-frequency characteristic of a series inductanceresistance network having a time constant of 75 microseconds. (See Figure 12 of § 3.699.) The deviation of the system response from the standard preemphasis curve shall lie between two limits as shown by Figure 12 of § 3.699. The upper of these limits shall be uniform (no deviation) from 50 to 15,000 cycles. The lower limit shall be uniform from 100 to 7,500 cycles, and three db below the upper limit; from 100 to 50 cycles the lower limit shall fall from three db limit at a uniform rate of one db per octave (4 db at 50 cycles), from 7,500 to 15,000 cycles the lower limit shall fall from three db limit at a uniform rate of two db per octave (5 db at 15,000 cycles)

(3) At any modulating frequency between 50 and 15,000 cycles and at modulation percentages of 25 percent, 50 percent, and 100 percent, the combined audio frequency harmonics measured in the output of the system shall not exceed the root-mean-square values given in the following table:

| Modulation frequency | Distortion (percent) | 50 to 100 cycles | 3.5 | 100 to 7,500 cycles | 3.6 | 3.0 |

(i) Measurement shall be made employing 75 microsecond de-emphasis in the measuring equipment and 75 microsecond pre-emphasis in the transmitting equipment, and without compression if a compression amplifier is employed. Harmonics shall be included to 30 kc.

Note: Measurements of distortion using deemphasis in the measuring equipment are not practical at the present time for the range 7,500 to 15,000 cycles for 25 and 50 percent modulation. Therefore, measurements should be made at 100 percent modulation and on at least the following modulating frequencies: 50, 100, 400, 1,000, 5,000, 10,000, and 15,000 cycles. At 25 and 50 percent modulation, measurements should be made on at least the following modulating frequencies: 50, 100, 400, 1,000 and 5,000 cycles.

- (ii) It is recommended that none of the three main divisions of the system (transmitter, studio to transmitter circuit, and audio facilities) contribute over one-half of these percentages, since at some frequencies the total distortion may become the arithmetic sum of the distortions of the divisions.
- (4) The transmitting system output noise level (frequency modulation) in the band of 50 to 15,000 cycles shall be at least 55 db below the audio frequency level representing a frequency swing of  $\pm 25$  kc.

Note: For the purpose of these measurements, the visual transmitter should be inoperative since the exact amount of noise permissible from that source is not known at this time.

(5) The transmitting system output noise level (amplitude modulation) in the band of 50 to 15,000 cycles shall be at least 50 db below the level representing 100 percent amplitude modulation.

Note: For the purpose of these measurements, the visual transmitter should be inoperative since the exact amount of noise
permissible from that source is not known at
this time.

- (6) If a limiting or compression amplifier is employed, precaution should be maintained in its connection in the circuit due to the use of pre-emphasis in the transmitting system.
- (7) The percentage of modulation of the aural transmissions shall be maintained as high as possible consistent with

good quality of transmission and good broadcast practice and in no case less than 85 percent nor more than 100 percent on peaks of frequent recurrence during any selection which normally is transmitted at the highest level of the program under consideration.

(c) Requirements applicable to both visual and aural transmitters. (1) Automatic means shall be provided in the visual transmitter to maintain the carrier frequency within ±one kilocycle of the authorized frequency automatic means shall be provided in the aural transmitter to maintain the carrier frequency 4.5 megacycles above the actual visual carrier frequency within ±one

(2) The transmitters shall be equipped with suitable indicating instruments for the determination of operating power and with other instruments necessary for proper adjustment, operation, and maintenance of the equipment.

(3) Adequate provision shall be made for varying the output power of the transmitters to compensate for excessive variations in line voltage or for other factors affecting the output power.

(4) Adequate provisions shall be provided in all component parts to avoid overheating at the rated maximum output powers.

(d) Construction. In general, the transmitters shall be mounted either on racks and panels or in totally enclosed frames-protected as required by article 810 of the National Electrical Code, and as set forth below:

Note: The pertinent sections of article 810 of the National Electrical Code read as fol-lows: "8191. General; Transmitters shall comply with the following:

a. Enclosing. The transmitter shall be enclosed in a metal frame or grille, or separated from the operating space by a barrier or other equivalent means, all metallic parts of which are effectually connected to ground.
"b. Grounding of controls. All external

metallic handles and controls accessible to the operating personnel shall be effectually grounded. No circuit in excess of 150 volts shall have any parts exposed to direct contact. A complete dead-front type of switchboard is preferred.

"c. Interlocks on doors. All access doors shall be provided with interlocks which will disconnect all voltages in excess of 350 volts when any access door is opened."

(1) Means shall be provided for making all tuning adjustments, requiring voltages in excess of 350 volts to be applied to the circuit, from the front of the panels with all access doors closed.

(2) -Proper bleeder resistors or other automatic means shall be installed across all the capacitor banks to lower any voltage which may remain accessible with access door open to less than 350 volts within two seconds after the access door is opened.

(3) All plate supply and other high voltage equipment, including transformers, filters, rectifiers and motor generators, shall be protected so as to prevent mjury to operating personnel.

(i) Commutator guards shall be provided on all high voltage rotating machinery. Coupling guards should be provided on motor generators.

(ii) Power equipment and control panels of the transmitters shall meet the operator.

above requirements (exposed 220-volt A. C. switching equipment on the front of the power control panels is not recommended but is not prohibited).

(iii) Power equipment located at a television broadcast station not directly associated with the transmitters (not purchased as part of same), such as power distribution panels, are not subject to the provisions of this subpart.

(4) The following provisions shall be applicable to metering equipment:

(i) All instruments having more than 1,000 volts potential to ground on the movement shall be protected by a cage or cover in addition to the regular case. (Some instruments are designed by the manufacturers to operate safely with voltages in excess of 1,000 volts on the movement. If it can be shown by the manufacturer's rating that the instrument will operate safely at the applied potential, additional protection is not necessary.)

(ii) In case the plate voltmeters are located on the low potential side of the multiplier resistors with the high potential terminal of the instruments at or less than 1,000 volts above ground, no. protective case is required. However, it is good practice to protect voltmeters subject to more than 5,000 volts with suitable over-voltage protective devices across the instrument terminals in case the winding opens.

(iii) Transmission line meters and any other radio frequency instrument which may be necessary for the operator to read shall be so installed as to be read easily and accurately without the operator having to risk contact with circuits carrying high potential radio frequency energy.

(e) Wiring and shielding. (1) The transmitter panels or units shall be wired in accordance with standard practice, such as insulated leads properly cabled and supported, coaxial cables, or rigid bus bar properly insulated and protected.

(2) Wiring between units of the transmitters, with the exception of circuits carrying radio frequency energy or video energy, shall be installed in conduits or approved fiber or metal raceways to protect it from mechanical injury.

(3) Circuits carrying radio frequency or video energy between units shall be coaxial cables, two wire balanced lines,

or property shielded lines.

(4) All stages or units shall be adequately shielded and filtered to prevent interaction and radiation.

(5) The frequency and modulation monitors and associated radio frequency lines to the transmitter shall be thoroughly shielded.

(f) Auxiliary transmitters. Auxiliary transmitters may not exceed the power rating of the main transmitters. As a general guide, specifications for auxiliary transmitters should conform as much as possible to those of the main transmitters. No requirements are set forth at this time.

(g) Installation. (1) The installation of transmitting equipment shall be made in suitable quarters.

(2) Suitable facilities shall be provided for the welfare and comfort of the

(h) Spare tubes. (1) A spare tube of every type employed in the transmitters and the frequency and modulation monitors shall be kept on hand at the equipment location. When more than one tube of any type is employed, the following table determines the number of spares of that type required:

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(2) An accurate circuit diagram and list of required spare tubes, as furnished by the manufacturer of the equipment, shall be supplied and retained at the transmitter location.

(i) Operation. (1) Spurious emissions, including radio frequency harmonics, shall be maintained at as low a level as the state of the art permits. As measured at the output terminals of the transmitter (including harmonic filters, if required) all emissions removed in frequency in excess of 3 Mc above or below the respective channel edge shall be attenuated no less than 60 db. below the visual transmitted power. (The 60 db. value for television transmitters specifled in this rule should be considered as a temporary requirement which may be increased at a later date, especially when more higher-powered equipment is utilized. Stations should, therefore, give consideration to the installation of equipment with greater attenuation than 60 db.) In the event of interference caused to any service greater attenuation will be required.

(2) If a limiting or compression amplifier is used in conjunction with the aural transmitter, due operating precautions should be maintained because of pre-emphasis in the transmitting system.

(j) Studio equipment. Studio equipment shall be subject to all the above requirements where applicable, except as follows:

(1) If properly covered by an underwriter's certificate, it will be considered as satisfying safety requirements.

(2) Section 8191 of article 810 of the National Electrical Code shall apply for voltages only in excess of 500 volts.

(3) No specific requirements are made relative to the design and acoustical treatment of studios. However, the design of studios, particularly the main studio, shall be compatible with the required performance characteristics of television broadcast stations.

§ 3.688 Indicating instruments. Each television broadcast station shall be equipped with indicating instruments for measuring the direct plate voltage and current of the last radio stage of the visual and aural transmitters and the transmission line radio frequency current, voltage, or power of both transmitters; such instruments shall conform to the specifications therefor set forth in this subpart.

(b) The following requirements and specifications shall apply to indicating instruments used by television broadcast stations in compliance with paragraph

(a) of this section:

(1) Length of scale shall be not less than  $2\%_{10}$  inches.

(2) Accuracy shall be at least 2 percent of the full scale reading.

(3) Scale shall have at least 40 divisions.

(4) Full scale reading shall be not greater than five times the minimum normal indication.

(5) No specifications are prescribed at this time regarding the peak indicating device required by § 3.689 (b)

(c) Any required instrument, the accuracy of which is questionable, shall not be employed. Repairs and calibration of instruments shall be made by the manufacturer, or by an authorized instrument repair service of the manufacturer, or by some other properly qualified or equipped instrument repair service. In any case, the repaired instrument must be supplied with a certificate of calibration.

(d) Recording instruments may be employed in addition to the indicating instruments to record the direct plate current and/or voltage to the last radio stage provided that they do not affect the operation of the circuits or accuracy of the indicating instruments. If the records are to be used in any proceeding before the Commission, as representative of operation, the accuracy must be the equivalent of the indicating instruments and the calibration shall be checked at such intervals as to insure the retention of such accuracy.

(e) The function of each instrument used in the equipment shall be clearly and permanently shown on the instrument itself or on the panel immediately

adjacent thereto.

- (f) In the event that any one of the indicating instruments required by paragraph (a) of this section becomes defective when no substitute which conforms with the required specifications is available, the station may be operated without the defective instrument pending its repair or replacement for a period not in excess of 60 days: Provided, That—
- (1) Appropriate entries shall be made in the operating log of the station, showing the date and time the meter was removed from and restored to service.
- (2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the instrument is found to be defective and immediately after the repaired or replacement instrument has been installed and is functioning properly.

(3) If the defective instrument is a plate voltmeter or plate ammeter in the last radio stage, the operating power shall be maintained by means of the radio frequency transmission.line meter.

(4) If conditions beyond the control of the licensee prevent the restoration of the meter to service within the above allowed period, informal request may be filed in accordance with § 1.332 (d) of this chapter with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument.

§ 3.689 Operating power—(a) Determination—(1) Visual transmitter The

operating power of the visual transmitter shall be determined at the output terminal of the vestigial sideband filter, if such filter is used; otherwise, at the transmitter output terminal. The average power shall be measured while operating into a dummy load of substantially zero reactance and a resistance equal to the transmission line surge impedance, while transmitting a standard black television picture. The peak power shall be the power obtained by this method, multiplied by the factor 1.68. During this measurement the direct plate voltage and current of the last radio stage and the peak output voltage or current shall be read for use below.

(2) Aural transmitter The operating power of the aural transmitter shall be determined by the indirect method. This is the product of the plate voltage (Ep) and the plate current (Ip) of the last radio stage, and an efficiency factor, F: that is:

Operating power= $Ep \times Ip \times F$ 

(i) The efficiency factor, F, shall be established by the transmitter manufacturer for each type of transmitter for which he submits data to the Commission, and shall be shown in the instruction books supplied to the customer with each transmitter. In the case of composite equipment, the factor F shall be furnished to the Commission by the applicant along with a statement of the basis used in determining such factor.

(b) Maintenance—(1) Visual trans-The peak power shall be monmitteritered by a peak reading device which reads proportionally to voltage, current, or power in the radio frequency transmission line, the meter to be calibrated during the measurement described in paragraph (a) (1) of this section. The operating power as so monitored shall be maintained as near as practicable to the authorized operating power and shall not exceed the limits of 10 percent above and 20 percent below the authorized power except in emergencies. As a further check, both the plate voltage and plate current of the output stage shall be measured with a standard black television picture with the transmitter operating into the antenna. These values must agree substantially with corresponding readings taken under paragraph (a) (1) of this section.

(2) Aural transmitter The operating power of the aural transmitter shall be maintained as near as practicable to the authorized operating power, and shall not exceed the limits of 10 percent above and 20 percent below the authorized power except in emergencies.

(3) Reduced power In the event it becomes impossible to operate with the authorized power, the station may be operated with reduced power for a period of 10 days or less provided the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified in writing immediately thereafter and also upon the resumption of the normal operating power.

### MONITORING EQUIPMENT

§ 3.690 Frequency monitors. (a) The licensee of each television broadcast station shall have in operation at the

transmitter approved frequency monitors independent of the frequency control of the transmitters.

Note: Approved frequency monitors are included on the Commission's "Radio Equipment List, Part A, Television Broadcast Equipment." Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field offices.

(o) In the event the visual or aural frequency monitor becomes defective, the station may be operated without such equipment pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: *Provided*, That:

(1) Appropriate entries shall be made in the operating log of the station to show the date and time the equipment was removed from and restored to service.

(2) The Engineer in Chargo of the radio district in which the station is located shall be notified both immediately after the equipment is found to be defective and immediately after the repaired or replacement equipment has been installed and is functioning prop-

erly

(3) During the period when the station is operated without the visual or aural frequency monitor, the respective carrier frequency shall be compared with an external frequency source of known accuracy at sufficiently frequent intervals to insure that the frequency is maintained within the tolerance prescribed in § 3.687 (c) (1) An entry shall be made in the station log as to the method used and the results thereof.

(4) If conditions beyond the control of the licensee or permittee prevent the restoration of the monitor or monitoring equipment to service within the period specified above, an informal request in accordance with § 1.332 (d) of this chapter may be filed with the Engineer m Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument or equipment.

§ 3.691 Modulation monitors. (a) The licensee of each television broadcast station shall have in operation at the transmitter an approved modulation monitor for the aural transmitter. There shall also be employed sufficient monitoring equipment for the visual signal to determine that the signal complies with the requirements of this subpart.

Note: Approved aural modulation monitors are included on the Commission's "Radio Equipment List, Part A, Television Broadcast Equipment." Copies of this list are available for inspection at the Commission's office in Washington, D. C., and at each of its field offices.

(b) In the event the visual monitoring equipment or the aural modulation monitor becomes defective, the station may be operated without such equipment pending its repair or replacement for a period not in excess of 60 days without further authority of the Commission: Provided, That:

(1) Appropriate entries shall be made in the operating log of the station to show the date and time the equipment was removed from and restored to service.

(2) The Engineer in Charge of the radio district in which the station is located shall be notified both immediately after the equipment is found to be defective and immediately after the repaired or replacement equipment has been installed and is functioning properly.

(3) During the period when the station is operated without the aural modulation monitor or the visual monitoring equipment, the licensee shall provide other suitable means for insuring that the aural modulation is maintained within the tolerance prescribed in § 3.687 (b) (7) and that the visual signal is maintained in accordance with the requirements of this subpart.

(4) If conditions beyond the control of the licensee or permittee prevent the restoration of the monitor or monitoring equipment to service within the period specified above, an informal request in accordance with § 1.332 (d) of this chapter may be filed with the Engineer in Charge of the radio district in which the station is located for such additional time as may be required to complete repairs of the defective instrument or equipment.

§ 3.692 General requirements for type approval of frequency and modulation monitors. (a) Any manufacturer desiring to submit a monitor for type approval shall supply the Commission with full specification details (two sworn copies) as well as the test data specified in §§ 3.693 and 3.694. If this information appears to meet the requirements of the rules, shipping instructions will be issued to the manufacturer. The shipping charges to and from the Laboratory at Laurel, Maryland, shall be paid for by the manufacturer. Approval of a monitor will only be given on the basis of the data obtained from the sample monitor submitted to the Commission for test.

(b) In approving a monitor upon the basis of the tests conducted by the Laboratory, the Commission merely recognizes that the type of monitor has the inherent capability of functioning in compliance with the rules, if properly constructed, maintained, and operated. The Commission realizes that the frequency monitor may have limited range over which the visual indicator will determine deviations. Accordingly, it is necessary that adjunct equipment be used to determine major deviations.

(c) Additional rules with respect to withdrawal of type approval, modification of type approved equipment and limitations on the findings upon which type approval is based are set forth in Part 2, Subpart F of this chapter.

(d) A monitor which is not included on the Commission's Radio Equipment List, Part A, Television Broadcast Equipment, but is in use at a television staa tion prior to December 12, 1955, may continue to be used by the licensee, his successors or assignees in business until June 1, 1957.

§ 3.693 Requirements for type approval of frequency monitors. (a) The specifications that frequency monitors shall meet before they will be approved by the Commission are as follows:

(1) The monitors shall have an accuracy of better than 500 cycles for 30 days under ordinary conditions (ambient, temperature from 10° centigrade to 40° centigrade above zero, humidity from 10 percent to 95 percent relative humidity. power supply variations from 90 percent to 110 percent, and other conditions which may affect its accuracy) encountered in television broadcast stations throughout the United States.

(2) The range of the indicating device for the aural monitor shall be at least 3000 cycles below to 3000 cycles above the assigned center frequency. Alternatively, the aural monitor may use an indicating device with a similar scale to indicate the difference-frequency between the aural and visual carriers. The range of the indicating device for the visual monitor shall be at least 1500 cycles below to 1500 cycles above the assigned carrier frequency.

(3) The scale of the indicating device shall be calibrated in divisions of not more than 100 cycles.

(4) Means shall be provided for adjustment of the monitor indication to agree with an external standard.

(5) The monitors shall be capable of continuous operation and the circuits shall be such as to permit continuous monitoring of the transmitter carrier frequencies, and the difference-frequency between the visual and aural carriers if this method of measurement is used.

(6) Operation of the monitors shall have no adverse effect on the operation of either the aural or visual transmitters or the signals emitted therefrom and shall be independent of the frequency control of the transmitters.

(7) Means shall be provided for insuring power input level.

(8) General design, construction and operation shall be in accordance with good engineering practice.

(b) Tests to be made for approval of television broadcast frequency monitors. The manufacturer of a monitor shall submit data on the following at the time of requesting approval:

(1) Constancy of oscillator frequency, as measured daily for one month, or

more.

(2) Constancy of oscillator frequency when subject to vibration tests which would correspond to the treatment received in shipping, handling and installing the instrument.

(3) Accuracy-of reading of the frequency deviation instrument.

(4) Functioning of frequency adjustment device.

(5) Effects on frequency readings, of the changing of tubes, of voltage variations, and of variations of room temperature through a range from 10° to 40° C.

(6) Response of indicating instrument to small changes of frequency.

(7) General information on the effect of tilting or tipping or other tests to determine ability of equipment to withstand shipment.

(c) Various other tests may be made or required, such as effects of variation of input from the transmitter depending upon the character of the apparatus.

(d) Tests shall be conducted in such a manner as to approximate actual operating conditions as nearly as possible. The equipment shall be tested on the highest channel for which it is designed.

§ 3.694 Requirements for type approval of aural modulation monitors. (a) The required aural modulation monitor may or may not be a part of the frequency monitor.

(b) The specifications that the aural modulation monitor shall meet before it will be approved by the Commission

are as follows:

(1) Means shall be provided for mdicating that the signal input to the modulation monitor is in the range required for proper operations.

(2) A modulation peak indicating device shall be provided that can be set at any pre-determined value from 50 to 120 percent modulation (±25 kc swing is defined as 100 percent modulation) and for either positive or negative swings (i. e. either above or below transmitter center frequency)

(3) A quasi-peak indicator with a meter having the characteristics given below shall be used with a circuit such that peaks of modulation of duration between 40 and 90 milliseconds are indicated to 90 percent of full value and the discharge rate adjusted so that the pointer returns from full reading to within 10 percent of zero within 500 to 800 milliseconds. A switch shall be provided so that this meter will read either positive or negative swings. Until June 1, 1957, however, monitors having meters which read either positive or negative swings will be eligible for type approval.

(4) When modulation of a magnitude necessary to produce a deflection equivalent to 100 percent modulation is suddenly applied and left on, the indicating instrument shall not deflect beyond 110 percent on the first passage of the 100 percent mark and shall have excursion from the final value of less than 1 percent after one second or more.

(5) The meter scale shall be similar in appearance to that of a standard VU meter. The scale length between 0 and 100 percent modulation markings shall be at least 2.3 inches. In addition to other markings a small marker for 133 percent modulation, designated as such, should be included for the purpose of testing the transmitter with 33.3 kc swing.

(6) The indicated reading in percentage shall be accurate within ±5 (based* on 100 percent modulation) at any percentage of modulation up to 100.

(7) The frequency characteristic curve as measured at 50 percent modulation shall not depart from a straight line more than 土½ db from 50 to 15,000 cycles. Distortion shall be kept to a minimum.

(8) The monitor shall not absorb appreclable power from the transmitter.

(9) Operation of the monitor shall have no adverse effect on the operation of the transmitter.

(10) General design, construction, and operation shall be in accordance with good engineering practice.

- (c) Tests to be made for approval of television broadcast aural modulation monitors. The manufacturer of a monitor shall submit data on the following at the time of requesting approval:
- (1) Audio frequency response of the monitor from 50 to 15,000 cycles in db from the response at 400 cycles.

  - (2) Distortion in the response.(3) Input signal power required.
- (4) Permissible tolerance on input signal power to keep the meter reading correct within 5 percent units.
  (5) Ballistic characteristics of the
- monitor indicator.
- (d) Various other tests may be made or required depending on the character of the apparatus.
- (e) Tests shall be conducted in such a manner as to approximate actual operating conditions as nearly as possible. The equipment shall be tested on the highest channel for which it is designed.

§§ 3.695-3.697 [Reserved.]

§ 3.698 Tables.

TABLE I MINUTES TO DECIMAL PARTS OF A DEGREE

Minutes	Degrees	Minutes	Degrees
	0.01667	31	0. 5166
2	. 03333	32	. 53333
3	.05	1 33	. 55
	.06667	34	. 5666
5	.08333	35	. 5833
3	.10	36	.60
·	.11667	37	.6166
3	.13333	38	. 6333
9	.15	39	. 65
10	.16667	40	- 6666
11	.18333	41	. 6833
2	.20	,42	.70
13	.21667	43	.7166
14	. 23333	44	. 7333
15	. 25	45	.75
16	. 26667	46	<b>₽7666</b>
17	28333	47	.7833
18	.30	48	.80
19	. 31667	49	.8166
20	. 33333	50	. 8333
21	.35	51	.85
22	.36667	52	. 8666
23	.38333	53	.8833
24	.40	54	.90
25	.41667	55	.9166
26	.43333	56	.9333
27	.45	57	.95
28	.46667	58	.966
29	.48333	59	.9833
30	.50	60	1.00

TABLE I-Continued SECONDS TO DECIMAL PARTS OF A DEGREE

Seconds	Degrees	Seconds	Degrees
1	0.00028	31	0.003a1 .0083b .00917 .00917 .00917 .01050 .01050 .01050 .01150 .01161 .01127 .0127 .0127 .0128 .0139 .0139 .0139 .0139 .0139 .01444
25 26 27 28 30	.00694 .00722 .0075 .00778 .00806 .00833	55	.01528 .01556 .01583 .01611 .01639

TABLE II MILES PER DEGREE OF LATITUDE DIFFERENCE

	1		
		,	
68,828	38	0	68,968
 68, 833		30	68, 974
 68, 837	39	0	68,980
 68,842	1	30	63, 986
 68, 847	11 40	0	63, 992
 63, 852	**	30	63, 998
 68, 857	41	0	69,004
 68, 862		30	69,011
 68, 867	42	0	69.017
 68,873	1	30	69,023
 68, 878	43	0	69,029
 68, 883	H	30	69.035
 68, 889	44	0	69.041
 68, 894		30	69,047
 68, 899	45	0	69,053
 68, 905		30	69,060
 68, 911	46	0	69,068
 68, 916		30	69,072
 68, 922	1 47	0	69,078
 68, 928	} ⁻`	30	69,084
 68, 933	48	0	69,090
 68-939	II	30	69,098
 68, 945	49		69, 102
	11	30	69, 103
	50		69.115
	"		1
	68, 933 68, 939 68, 945 68, 951 68, 957	68, 933   48 68, 939   68, 945   49 68, 951   68, 957   60	68, 933   48 0

No. 239---13

TABLE III

					TABLE	ш		(Dan	James : *	·	la Alm				
Middle latit	Middle latitude degrecs o							rnes ber	nestee et	lengine	ro officie	neo (stat	uto mEx	") <del>.                                    </del>	
						25	ಐ	27	ಚ	အ	ဆ	31	33	33	34
Min	utes														
1						E 720	រក្ខាត្តក្នុកក្រក្នុកក្នុក រក្ខខ្មត់ក្នុងក្នុង	GT (22)	GL 120 GL 111	0.27	12,03 12,03 12,03	SCOCOCOCOCOCOCOCOCOCOCOCOCOCOCOCOCOCOCO	23.716 23.706	13.000 13.000	57.406 57.395 57.234
3					*******	388	E 184	3555563555 3555565555	GL 191 GL 072	8888 8888 8888 8888 8888 8888 8888 8888 8888	(2,625 (2,625	72.314	13.C3 13.G4	23.043 23.037	57.373
5	·					388	2 107	61.63	GL 622 GL 623 GL 623 GL 624	ම් ම්කිකි ම්කිකි	23,005	0.23	3.03	23.020 23.015 23.004 57.034	57.202 57.350
7						828	E 10	GL GII	61.624 61.645	0.473	17.835	17.273 17.273	83.642	57.034	57.333 57.333 57.316
9						55	C 133	01.233	61.625	(0.423 (0.443	00000000000000000000000000000000000000	£3.223 £3.211	គគគគគគគគគគគគគគគគគគគគគគគគគគគគគគគគគគគគគ	57.983 57.972 57.961	57.205 57.234
11						888	38888888888888888888888888888888888888	01.634 01.635 01.63	61.617 61.607	(0),440	0.83 0.83 0.83	(2.21 (2.22)	23.759 23.753	57.030 57.033	57.253 57.271
13 14						C2.003	<b>65</b> 683	61.257 61.257 61.697	നസ്	641 641 641 641	72.814	22.210 23.200	13.578 13.577	57.923 57.917	57.200 57.243
1516						67.63 67.631	<u> </u>	9888	පුපුපුව සුල්පුව	60.400 60.500	22,884 22,784	72.150 72.170	13.136 13.146	57.006 57.805	57.23 57.227
17						82	1785888 මූපිම්මම්	01.610 01.610	COLUMN 1	888 888 888 888 888	10.734 10.774	10.103 10.103	23.524 23.524	57.834 57.673	57.215 57.204
20			*******	•••••		888	65 62 65 634	61.482 61.482	60 50 60 50 60 50	88888888888888888888888888888888888888	53.761 53.761	0.137	3.04 3.03	57.831 57.831	57, 192 57, 181
22						33.5	2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3	GL 474	18888888888888888888888888888888888888	6.33	0.74 0.72 0.72 0.73	20.116	23.431	67.849 67.829	57,170 57,159
24						62.63	61.023	61.455 61.455	0.83 0.83	88888 88888 88888	12.713	L Z9.033 I	£3.430	67.813 67.807 67.766	57.147 57.136 57.125
26						C2.403	61.851 61.072	61.435 61.437 61.433	00.874 00.833	0.22	10.183 120.03 120.03 120.03	29.035 29.074 29.064	13.43 13.43 13.43 13.43 13.417	57.783 57.774	57.113 57.102
28						CL 450	61.033 61.935	61.410	က္ကန္မာ	588 288	10000000 10000000000000000000000000000	(2.034	23.417 23.496	57.763 57.752	57,020 57,079
3031						C2.472 C2.403	61.935 61.949 61.937	61.490 61.591	0.83	(0.213 (0.213	19.032 50.042	0.63 0.63 0.63 0.63 0.63	23,396	57.741 57.729	57.053 57.057
32						C2.446	61.023 61.018		1888888 1488888	1997288383 19972883	10.02 10.02 10.02	29.012 23.091	(8.335 (3.374 (3.223	57.718 57.707	67.045 67.034
3435						C 423	61.000	01.23	994	62.233	0.01	ස්ස්ස්ස්ස් පිනිසිසිසි	23,352 23,341	57.636   57.635	57.022 57.011
3637						C2 412 C2 412	01.831 01.832	01.335 01.335 01.335	00.703	1 00 100	0.01	3.00 3.00	3.331 3.320	57.674 57.663	20.609 26.983
38						823	01.874 61.885	CL 316	8.72 8.72 8.72 8.72	00.174 00.164	0.51	200	13.23	57.633 57.641	26.977 20.965
41						237	61.835 61.835 61.847	gr.	6.23	8134 8134 8134 8133 8133 8133	193333 193333 193333	13.617	13.277	57.613 57.613	56.934 56.943 56.931
43						82.50	61.83	ii.	12444 12444 12444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444 13444	Ø. 121 Ø. 114	3333339 4333339	IS EST	13.23	57.697 57.596 57.535 57.574	56,919 56,903
4548						(2.342 (2.334	61.822	61.231 61.232	8.63	00.121 100.034	17.423	£3.875	13.23 13.23	57.574 57.263	£6.897 £6.835
4748						62.325 62.316	61.783 61.784	61.232 61.233	1 (0.072	0.031	12.43	£3.854 £3.843	73.212 73.201	57.552 57.541	56.874 56.883
49 50						67 233	61.83 61.83 61.83 61.83 61.73 61.73 61.73	30000000000000000000000000000000000000	888 888	පුපුපුපු පුපුපුපුපු පුපුපුපුපු	0.43	IZ EZ	epopopopopopopopopopopopopopopopopopopo	57.529 57.518	26.831 26.840
52				********		8 21	GL 743	61.185 61.185	8888 8888	0.05	19999999 19999999999999999999999999999	[3.812 [3.80]	G. 163 G. 157	57.207 57.408	56,829 56,817
53						62.54	61.723 61.721 61.721	61.185 61.176 61.167			5	13.730	(3.123 (3.123	57.435 57.473	50.805 56.794
56		······		•		E 233	61.712 61.702	61.123 61.143	38888888888888888888888888888888888888	in in		13.70	13.114 13.153	57.451 57.451 57.440	56.782 56.771 56.773
58						SE SES	01.03	el in	88	88888888888888888888888888888888888888	0.33 0.33 0.33	1920 1920 1920 1920 1920 1920 1920 1920	13.652 13.631	57.420 57.418	£0.743 £0.737
0						<u> </u>		<u> </u>	!	<u> </u>	<u>.                                    </u>	<u> </u>	<u> </u>		<u> </u>
Middle latitude degrees		1			· · · · · ·			1	Nerenco	ì	,		1	1	
	35	86	37			40	41	42	43		45	45	47	43	43
Minutes	56, 725	56,026	55 311	UL. 578	m.823	ಜ್ಯಾಣ	to con	51.452	<b>20.03</b>	40.500	43,095	43, 125	47.200	48,371	45.403
0:	56,725 56,713 56,702	56,014 56,002	55, 239 55, 238	54. 533	83.83 83.816 83.83		1958 1858 1858	81.403 81.455	(A.C.5 (A.C.1)	42.823 42.823 42.811	43,030 49,006	43,100	47.245	46.371 46.326 46.341	45.433 45.438
<u>4</u>	56.630 56.678	55, 991 55, 979	55, 274 55, 202	54.541 54.523	ES. 778	E	223	51.442	10.027 10.014	42.707 42.763 42.700	48,002 48,007	48.001 48.677	47.216 47.201	45,325	45.422 45.407
56	56.667 56.655	55,967 55,955	55.311 55.229 55.229 55.229 55.229 55.229 55.223 55.213 55.213 55.213 55.213 55.213	54.516 54.533		25555555555555555555555555555555555555	(5 30) (5 30)	51.415 51.492 51.353	10.133 10.133	1 42 7/5	43.023 43.009	43.03 43.03	47.157 47.172	45.256 46.251 45.252 45.252 45.257 45.257 45.257 45.257	45.392 45.377 45.362
8	56.644 56.632	55.943 55.931	55, 220 55, 213	54.491 54.479 54.469	27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73 27.73	200	62 175	61.353 61.375	(0.00 (0.00 (0.00 (0.00 (0.00)	42.741 42.727	43.833 48.831 48.867	43,024 48,019 48,003	1 47.17.3	45.200 46.232	45 246
10	56.621 56.610	55,920 55,903	55, 201 55, 189		E3.702	E2 033	62 163	51.375 51.391 51.349 51.335 51.331	in this	42.713 42.03	43.853 43.853 43.833	1 47, 530	47.114	46.222	45.331 45.317 45.391 45.253 45.270
11	56.598 56.586	55, 898 55, 884 ,55, 872 55, 860	55, 165 55, 153	51.441 54.429 54.417 54.404 54.592	E 677	12.007	100	61.331	10.017 10.194	42.625	43.821 42.899 43.723	47.078 47.001 47.016 47.032	47.039 47.034 47.009	46. 177	45.253
14 15	56.563	55.890 55.849	1 55.141	54.404	8.65 8.65 8.65 8.65	12 22	333	11.25.	60.470	42.623		47:032 47:017	47.034 47.040	45, 162 46, 147	45.253 45.253
16	56, 586 56, 575 56, 563 56, 552 56, 552 56, 529	55.837 55.825	55, 128 55, 116 55, 104	54.380 64.367	2000 2000 2000 2000 2000 2000 2000 200	100 mm	5000000000000000000000000000000000000	8L 27	00.420 00.470 00.402 00.402 00.425 00.421	42.615	49.767 49.762 49.733 49.721	47.003	47.623	46. 132 46. 117	45,275
18	56.505	55.802	55, 104 55, 033 55, 030	54.354 54.342	1 656 653	12.80 12.817 12.831	2555 255 255 255 255 255 255 255 255 25	61.239	1772	10.03	49, 739 43, 721	47.874 47.879	40.093 40.990	45.162 45.037	45, 174
20	0 56.493   55.790   55.055   54.330   53.676							61.102	10.251 10.250	4.63 4.63 4.63 4.63 4.63 4.63 4.63 4.63	48.79	47.815 47.829	46.603 46.631	40.072 49.057	45.178
22	56.470 58.459	55.766 55.754	55.043 54.031	64.00 64.00 64.00 64.00 64.00 64.00 64.00 64.00 64.00	1 73 549	12.731 12.778 12.715	51, 027	1 51. 172		43.517	1 43 631	47.516	46,636	40.0	المحتبدات
25	56.447 56.435 56.424	55.742 55.730	55.010 55.007	64.207 64.207		1 12 723 12 723	51.633 51.633 51.633 51.633	51.185	10,303	42.49	43.67 43.63 43.63 43.63	47.891 47.767 47.772 47.713 47.713	45.600 45.601	45.012 45.057 45.052 45.037	45.1.3 45.6·3
26	.   56.412	55, 730 55, 718 55, 706 55, 694	54.095 54.093 54.970 54.038	64, 255 64, 242	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	12 713 12 713	91.00	61, 132 51, 119 61, 164	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	42.459 42.475 42.451		17.753 17.713	49.877 49.892	45.637	45.6·3 47.073 47.057
29	56.401 56.389 56.378	65,632	54.970 54.938 54.946	54,217	EL 473 EL 460 EL 448	12 (27	51.910 51.897	1.74.001	10.20	49,447 49,433 49,419	43. (5) 43. (5) 43. (5) 43. (5) 43. (5) 43. (5) 43. (6)	47.729 47.714 47.639	40.832	45.932 45.937	45.042 45.026 45.011
30	56.366	55, 659 55, 647	54.934 54.922	64, 102	EL 435 EL 422 EL 400	E CS1	51.833 51.830 51.837	81.004 61.004	173.512	42.403	19.232	47. C3 47. C71	42.803 45.733 45.773 45.773 45.763	45.622 45.606 45.601 45.876 45.881	44.006 44.006 44.931
33	-1 00.003	55.635	54,003	54, 160 54, 167 54, 155	12200	1 22 23	121.843	81.03 81.03 81.03	10.214	42.377	13.221	37.626	45.773	45.870	44
34	56.331	65 623	54 897	54, 155	13, 303	12 122	51.800	51.623	70.000	43.363	43.770	47.641	43.753	45.801	44-12-11
34	56.331 56.319 56.308	55.623 55.611 55.639	54.897 54.885	54, 142 54, 130	53.384 53.384 53.371	E E E	61.843 61.809 61.817 61.834	1.51.619	1 22, 173	49,363 49,343 49,334	43.400	47.1.27	40.744	45,845	44.830 44.835 44.820
34	56.366 56.354 56.331 56.331 56.308 56.298 56.284	55. 623 55. 611 55. 599 55. 687 55. 575	54.897 54.885 54.872 54.861	54, 142 54, 130 54, 117	E 353 E 371 E 371 E 353 E 353	1000 1000 1000 1000 1000 1000 1000 100	51.800 51.817 51.894 51.700 51.777	1.51.619		40.403 40.601 40.601 40.303 40.303 40.303 40.303 40.500	43.400 43.400 43.400 43.400 43.400	47.012 47.207	40.744 40.729 46.714	45.891 45.845 45.831 45.815 45.801	44.005

### **RULES AND REGULATIONS**

TABLE III-Continued

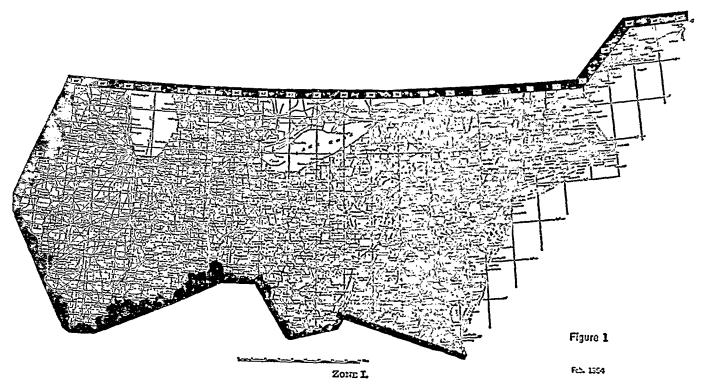
				TAI	ble III—	-Continu	ed								
	Miles per degree of longitude difference (statute miles)														
Middle latitude degrees	. 35	36	37	38	39	40	41	42	43	44	45	40	47	48	40
Minutes   39	56. 273 56. 264 56. 224 56. 228 56. 226 56. 214 56. 202 56. 197 56. 157 56. 156 56. 144 56. 132 56. 109 56. 093 56. 073 56. 050 56. 038	55. 563 55. 553 55. 527 55. 515 55. 503 55. 491 55. 479 55. 455 55. 431 55. 419 55. 419 55. 395 55. 395 56. 39	54, 836 54, 821 54, 821 54, 799 54, 775 54, 775 54, 775 54, 775 54, 775 54, 773 54, 773 54, 773 54, 683 54, 676 54, 664 54, 662 54, 662 54, 662 54, 662 54, 662 54, 662 54, 662 54, 662 54, 663 54, 662 54, 663 54, 662 54, 663 54, 66	54,092 54,0667 54,054 54,054 54,053 54,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 55,057 5	53. 332 53. 320 53. 320 53. 294 53. 281 53. 283 53. 255 53. 243 53. 217 53. 191 53. 178 53. 178 53. 178 53. 152 53. 152 53. 144 53. 191 53. 191 53. 191 53. 193 53. 193 54. 193 55. 193 56. 193 57. 19	52, 556 52, 553 52, 553 52, 557 52, 564 52, 478 52, 478 52, 442 52, 443 52, 44	51, 763 51, 756 51, 756 51, 723 51, 710 51, 634 51, 637 51, 635 51, 635 51, 630 51, 536 51, 53	50. 955 50. 942 50. 923 50. 914 50. 9014 50. 887 50. 887 50. 883 50. 860 50. 805 50. 778 50. 778 50. 774 50. 723 50. 723 50. 698 50. 698 50. 698	50, 131 50, 113 50, 103 50, 030 50, 076 50, 068 50, 034 50, 020 50, 099 40, 992 40, 993 40, 895 40, 885 40, 885	49, 292 49, 273 49, 249 49, 231 40, 221 40, 207 40, 165 40, 170 40, 168 40, 108 40, 108 40, 080 40, 060 40, 061 40, 063 40, 06	48, 427 48, 423 48, 400 48, 395 48, 365 48, 361 48, 361 48, 363 48, 222 48, 236 48, 270 48, 250 48, 250 48, 216 48, 21	47, 563 47, 553 47, 553 47, 553 47, 593 47, 495 47, 485 47, 485 47, 485 47, 495 47, 397 47, 393 47, 393 47, 393 47, 393 47, 293 47, 275	40, 684 40, 669 40, 669 40, 669 40, 669 40, 566 40, 561 40, 561 40, 461 40, 470 40, 440 40, 431 40, 401 40, 431 40, 401 40, 431 40, 401 40, 431 40, 401 40, 401 40, 401	45, 780 46, 7750 46, 7751 46, 7761 46, 770 46, 695 46, 495 46, 493 46, 493 46, 493 46, 493	44, 874 41, 843 44, 843 44, 827 44, 707 41, 782 44, 760 44, 720 44, 720 44, 639 41, 634 44, 632 44, 634 44, 63

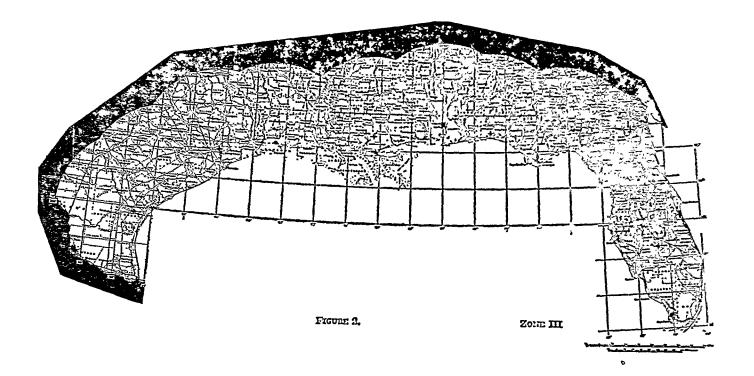
	_ l	<u> </u>	!	1 1		<u>. l</u>	<u> I J</u>		!
			TAB	E IV					
	(1)		(2)	(3)	-	(4)	(5)	(6)	(7)
Ch	annel		20 miles (IF beat)	20 miles (i . modulati	nter- on)	55 miles (adjacent channel)	60 miles (oscil- lator)	60 miles (sound image)	75 miles (picture image)
14			22 23 4 25 6 27 22 23 1,1 16 17 22 23 24 25 6 27 22 23 24 25 6 27 22 23 24 25 6 27 22 23 24 25 6 27 22 23 24 25 26 27 25 26 27 25 26 27 25 26 27 25 26 27 25 26 27 25 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26 27 26		- 190212322222222343535735339401223445464734955152334555575661223455566777777777777777777777777777777777	14, 16 7 18 11 16, 18 11 17, 19 11 18, 20 21 22, 22 22 22 22 22 22 22 22 22 22 22 22	21 22 23 24 25 26 27 14 22 26 27 14 22 26 27 14 27 28 28 29 29 29 29 29 29 29 29 29 29 29 29 29	28 28 28 28 28 28 28 28 28 28 28 28 28 2	20 30 1 32 3 3 3 4 5 5 6 7 5 8 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7

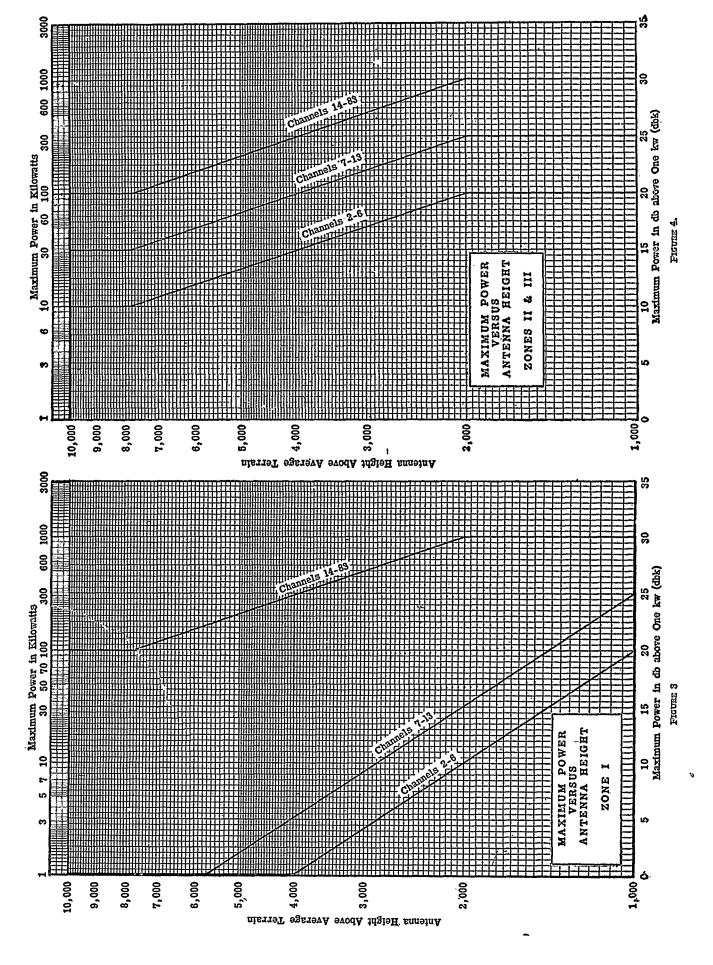
Note: The parenthetical reference beneath the mileage figures in columns 2 through 7, inclusive, indicate, in abbreviated form, the bases for the required mileage separations. For a discussion of these bases, see the "Sixth Report and Order" of the Commission (FCC 52-294). The hyphenated numbers listed in column (3) are both inclusive.

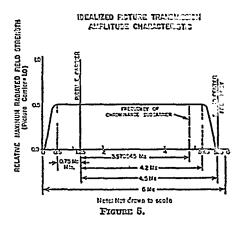
§ 3.699 Engineering charts.

Note: The charts as reproduced herein, due to their small scale, are not to be used in connection with material submitted to the









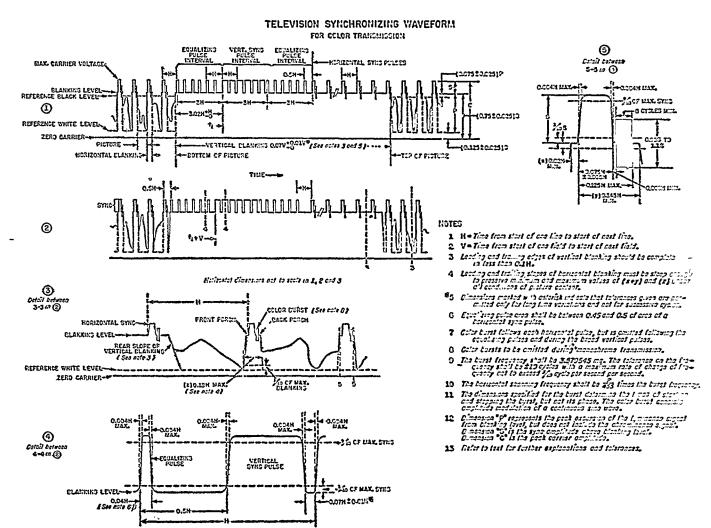
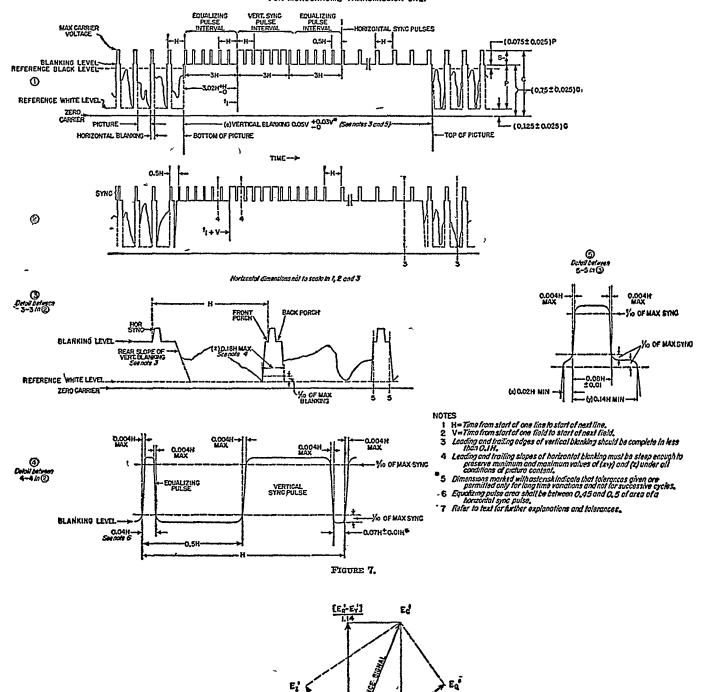


FIGURE 6.

# TELEVISION SYNCHRONIZING WAVEFORM FOR MONOCHROME TRANSMISSION ONLY

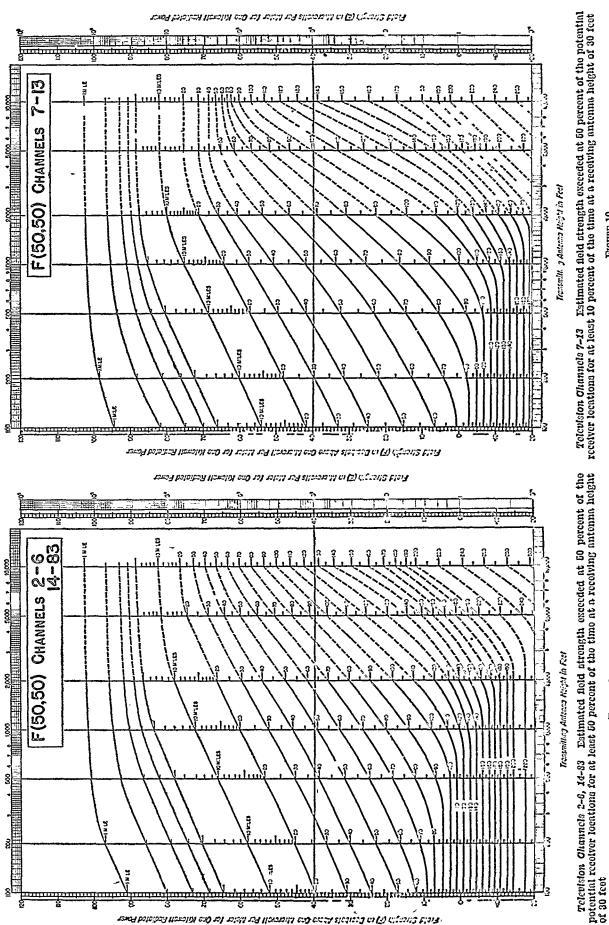


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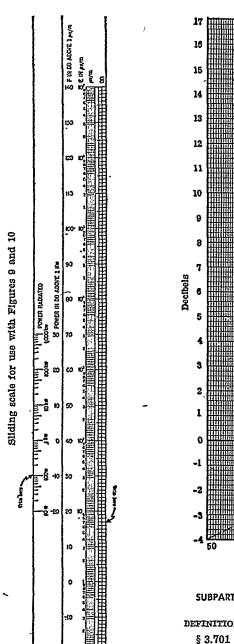
FIGURE 8.

REFERENCE

BURST



יצונים בווכילים (צוים ברייונים עדים פים דוומבים וו גית ויצות ומ פים ומוכיים שפייחות בסיים



ASSUMED IDEAL DETECTOR OUTPUT

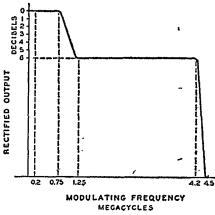


FIGURE 11.

(e) Vernal equinox season. That period of any calendar year starting at 0000 EST on 1 February and ending at 2400 EST on 30 April.

(f) Summer season. That period of any calendar year starting at 0000 EST

STANDARD PRE-EMPHASIS CURVE TIME CONSTANT 75 MICROSECONDS (Solid Line) Frequency Response Limits Shown by use of Solid and Dashed Lines 600 1000 Cycles Per Second

FIGURE 12.

(OWF)

### SUBPART F-INTERNATIONAL BROADCAST **STATIONS**

DEFINITIONS AND ALLOCATION OF FACILITIES § 3.701 Definitions. The following

definitions apply to terminology employed in this subpart:

(a) International broadcast station.

- broadcasting station employing frequencies allocated to the broadcasting service between 5950 and 26100 kc, whose transmissions are intended to be received directly by the general public in foreign countries.
- (b) Frequency-hour One frequency used for one hour.
- (c) Day. Any twenty-four hour pe-nod beginning 0000 EST and ending 2400 EST.
- turned to the surface of the earth for a (d) Sunspot number The predicted particular path and time of day on 90 12 month running average of the number percent of the days of the reference of sunspots for any month as indicated month. in the National Bureau of Standards CRPL Series D publications.
  - (k) Reference month. The middle month of any season listed in § 3.704 "Daily Frequency Hour Availability Table." (1) Delivered median field intensity or
  - field intensity. The field intensity incident upon the target area expressed in microvolts per meter, or decibels above

- on 1 May and ending at 2400 EST on 31 July.
- (g) Autumnal equinox season. That period of any calendar year starting at 0000 EST on 1 August and ending at 2400 EST on 31 October.
- (h) Winter season. That period of any calendar year starting at 0000 EST on 1 November and ending at 2400 EST on 31 January.
- (i) Maximum usable frequency (MUF) The highest frequency which is returned to the surface of the earth for a particular path and time of day on 50 percent of the days of the reference month.

(j) Optimum working frequency Which is re-

one mircovolt per meter, which is exceeded by the hourly median value on 50 percent of the days of the reference month.

- (m) Target area. Geographic area in which the reception of particular programs is specifically intended and in which adequate broadcast coverage is contemplated.
- (n) Contract operation. Any non-Government operation of an international broadcast station pursuant to a contract with an agency of the United States Government and subject to Governmental control as to program content, target areas to be covered, and time of broadcast.
- (o) Private operation. Any non-Government operation of an International Broadcast station which is not contract operation.
- § 3.702 Assignment and use of frequencies.

Note: Paragraphs (c) through (k) do not apply to stations when engaged in contract operations as defined in § 3.701.

- (a) Frequencies will be assigned by the Commission from time to time and in accordance with the provisions of this section, to authorized international broadcast stations for use at specified hours and for transmission to specified target areas. Licensees may request the assignment of specific frequencies for transmission during given hours of operation to specified target areas by filing informal requests in triplicate with the Commission no less than 15 days prior to the start of a new season. Such requests will be honored to the extent that interference and propagation conditions permit and that they are otherwise in accordance with the provisions of this section. Requests for changes in frequency or hour assignments at other times during the year or which are received less than 15 days before the start of a new season will be processed as rapidly as practical. All specific frequency authorizations will be made only on the express understanding that they are subject to immediate cancellation or change without hearing whenever the Commission determines that interference or propagation conditions so require and that each assignment of frequency hours for a given season is unique unto itself and not subject to renewal, with the result that completely new assignments must be secured for the forthcoming season. Where a station is simultaneously engaged in both private and contract broadcasting, as defined in § 3.701, it must receive separate frequency hour authorizations for each of these operations.
- (b) Any foreign standard target areas shown in Figure 1 of § 3.792 may be specified by the licensee, in which case field intensity calculations should be based on the transmission path between the corresponding reference points listed in § 3.703. In the event a broadcast is to be directed to more than one target area in the same region, the primary target area should be specified and the reasons for selecting that particular target area given, with special reference to

the nature and special suitability, if any, of the programming proposed. Field intensity calculations should be based on the transmission path to the standard reference point in § 3.703 for the primary target area. In the event a licensee wishes to specify target areas other than those shown in Figure 1 of § 3.792, adequate justification must be given to show that the use of standard target areas is inappropriate, with special reference given to any specialized programming proposed which appears suitable only for the nonstandard target areas designated. When nonstandard target areas are proposed, special reference points must be specified (by geographical coordinates) and reasonably chosen so as to insure complete and adequate coverage of the target

(c) Frequencies assigned by the Commission will be within the following bands:

Band	A	5950-6200
Band	B	9500-9775
Band	C	11700-11975
Band	D	15100-15450
Band	E	17700-17900
	F	
Band	G	25600-26100
25and	O-11110-110-110-1	

(d) No frequency will be assigned which would provide a Delivered Median Field Intensity, either measured or calculated, of less than 150 uv/m-50 percent or 43.5 decibels above one uv/m at the distant foreign target area. (This value of Delivered Median Field Intensity is expected to provide protection against atmospheric and industrial noise for at least 90 percent of each hour during 90 percent of the days of the month.) With each request for frequency assignment, licensees must submit computations which adequately show that this requirement would be met.

Note: Standard OWF propagation curves and Delivered Median Field Intensity curves for the various hours and seasons throughout the eleven year sunspot cycle have been computed for transmission paths between standard reference points listed in § 3.703 for the standard target areas shown in Figure 1 of § 3.792. These curves, which were developed and used at the Mexico City High Frequency Broadcasting Conference (1948–1949), are available at the Commission's Washington offices and may be used in calculating the propagation data which licensees are required to provide under these Rules. The methods used in computing these data are described in Chapter 7, paragraph 7.7 of the National Bureau of Standards Circular 462. In lieu of that data, and in all cases where nonstandard target areas are specified as provided in paragraph (b) of this section, licensees must develop their own propagation curves for use in computing values of OWF and Delivered Median Field Intensity for the particular transmission paths involved. In doing so, use may be made of the published propagation data of the National Bureau of Standards known as CRPL Series D, "Basic Radio Propagation Predictions", published monthly in conjunction with National Bureau of Standards Circular 465, "Instructions for the use of Basic Radio Propagation Predictions." These publications are available from the Superintendent of Documents, Washington 25, D. C. A typical example of a computation for a transmission path between standard target areas is from New York (Area 8) to Buenos

Aires (Area 15). The Delivered Median Field Intensity for the equinox season, sunspot 5, and for the 6 Mc band for the hours 0200 to 0400 GMT is indicated by the appropriate propagation curve as 24 decibels above one microvolt per meter for 1 kw radiated power. The transmitter power output of 20 decibels (100 kw) is added. The transmitting antenna gain of 12 decibels is added. The resultant total (56 decibels) exceeds the level of 43.5 decibels required to deliver a median field intensity of 150 uv/m at the distant target area.

- (e) Frequencies assigned will be as near as possible to the Optimum Working Frequency. In no case will they exceed the Maximum Usable Frequency for more than a total of 15 minutes during any period of transmission. With each request for frequency assignment, licensees must submit computations which adequately show that this requirement would be met. (See note in paragraph (d) of this section regarding methods for computation.)
- (f) Not more than one frequency will be authorized for use at any one time for any one program transmission except in instances where a program is intended for reception in more than one target area and the intended target areas cannot be served by a single frequency.
- (g) No authorization for use of a particular frequency will be issued which fails to provide a minimum co-channel Delivered Median Field Intensity protection ratio of 40 db to the transmissions of other broadcasting stations at the reference point in the target area being served by such stations which, in the opinion of the Commission, have priority of assignment.
- (h) Authorization for use of a particular frequency will not be issued which does not provide a minimum adjacent channel Delivered Median Field Intensity protection ratio of 11 db to the transmissions of other international broadcasting stations at the reference points in the target areas being served by such stations which, in the opinion of the Commission, have priority of assignment.
- (i) Any frequency authorized to an international broadcast station shall also be available for assignment to other international broadcast stations.
- (j) Not more than one frequency shall be used simultaneously under the same authorization and call letter and equipment installation number designation.
- (k) Subject to all other pertinent provisions of this subpart, the total maximum number of frequency-hours which will be authorized to all licensees of private international broadcast stations for private operation combined in any frequency band for any pertinent season during any one day will be those in § 3.704 less the number of frequency-hours in these bands scheduled for use by both (1) government international broadcasting stations, and (2) international broadcast stations licensed by the Commission to use frequencies in these bands for contract operations.
- (1) In the event the total number of frequency hours in any band scheduled for both (1) government international broadcasting stations, and (2) international broadcast stations licensed by the

Commission to use frequencies in these bands for contract operations equals or exceeds 75 percent of the frequency hour figures given in § 3.704, the maximum number of frequency-hours which will be authorized to all licensees of international broadcast stations for private operation in any frequency band for any pertinent season during any one day will be 25 percent of the frequency hours shown in § 3.704.

(m) If the requests for international broadcasting frequency-hours for private operation in any band or bands exceed those available under the terms of these Rules, in the absence of any voluntary agreement for reduction of frequency-hours requested, the Commission will designate all requests for frequency-hours in the band or bands in question for hearing. Pending such hearing the Commission will temporarily assign the available frequency-hours equally among the several applicants: Provided, however That with respect to such temporary allocation:

(1) An existing license shall not, to the extent such frequency hours are available, receive less than the number of frequency-hours utilized during the preceding season or requested for the forthcoming season, whichever is lesser.

(2) Where the number of frequency-hours available for private international broadcasting during a forthcoming season are insufficient to permit existing licensees to secure a temporary allocation equal to that previously utilized or requested, whichever is lesser, the allocation shall be pro-rated among such persons in a manner which will give them a share of the available frequency-hours proportionate to that utilized in the preceding season.

(3) In any event, where an applicant's share of the available frequency hours would be more than requested, the surplus shal be divided among the remaining applicants in the manner herein prescribed.

§ 3.703 Latitude and longitude of areas used for field intensity calculations.

Area No.	Latitude degrees	Longitude degrees
1	65 N. 60 N. 60 N.	150 W
2	60 N.	125 W 100 W
3	60 N.	100 W
4 5	70 N.	80 W 40 W
} }	40 N.	100 337
7	40 N. 40 N.	100 W
8	40 N.	80 W
9	40 N. 50 N. 20 N. 10 N.	100 W 80 W 60 W 100 W
10 11	20 N	100 W
12:	10 S.	70 W
13	10 S. 10 S. 30 S.	70 W 50 W 60 W 50 W 70 W 20 W
14	30 S.	60 W
15	25 S. 45 S.	50 W
16	85 N	I % ₩
17 18	65 N.	1 15 T
19	65 N. 65 N. 65 N. 70 N.	40 E
20	70 N.	60 E 80 E
21	5556645488865588845857777777777777777777	40 E 60 E 80 E 100 E 120 E 140 E 160 E
22 23	70 17	120 E
24	65 N.	120 E 140 E 160 E 180 E
25	65 N. 65 N.	160 E
26	65 N.	1 180 E
27	50 N.	20 E
28	N 23.	1 40 E
30	50 N.	60 E
31	50 N. 50 N. 50 N.	80 E
32	70 N.N.N.N.N.N.N.N.N.N.N.N.N.N.N.N.N.N.N.	25 W FF F
33	. W. N.	120 5
35	65 N	160 E
36	55 N. 40 N. 30 N. 30 N. 30 N. 30 N.	25 W
37	. 30 N.	_0° _
38	. 30 N.	20 4
40	30 N	1 66
41	20 N	l so Î
42	40 N.	85 E
43	35 N. 30 N. 35 N. 10 N.	100 1
44	30 N.	120 5
45	10 10	7 4 4
47	10 N.	20 F
48	_ 10 N.	40 E
49	35 N. 30 N. 35 N. 10 N. 10 N. 10 N.	100 1
50	10 IX.	140 7
52	10 S.	20 Î
53	10 8.	40 E
54	10 S.	105 E
55	15 8.	140 4
57	10 S. 5 S. 15 S. 20 S. 30 S. 3. 40 N. 5. 20 S. 2	20 FE 400
58	_ 25 B.	120 I
59	35 8.	150 I
60	-  40 Ş.	170 I
61	-  20 N	160 1
62	20 8	150 W
64	_l 15 N.	145 F
65	10 N.	170 I

§ 3.704 Daily frequency hour availability table.

	_	Sunspot Numbers									
Band	Season	0-20	20-35	35-50	50-65	65-80	80-95	95-110	110-125	125-140	
Mc. 6 11 15 17 21 20	June  March-September  December  Juno  March-September  June  March-September  December  Juno  March-September  Juno  March-September  December  June  March-September  June  March-September  March-September  Juno  March-September  Juno  March-September  Juno  March-September  Juno  March-September	54 53 47 31 84 49 35 23 23 14 2 0 6	0 21 47 30 42 50 50 50 34 88 54 35 32 22 22 18 9 11	0 14 48 27 36 47 48 52 36 91 535 40 22 21 14 16 15 (1)	0 7 49 24 31 44 46 54 57 21 21 21 21 8 (1)	0 0 50 21 27 42 45 53 96 64 35 53 20 22 27 (!)	0 0 16 23 39 39 34 87 47 33 59 24 23 39 36 29 (!)	0 0 111 199 331 440 330 779 331 666 229 220 425 38 (f)	0 0 5 12 33 33 33 31 26 69 21 21 77 68 47 (!)	0 0 32 2 10 32 14 24 22 58 84 85 86 85 (4)	
Totals		196 200 185	209 198 195	220 198 202	229 196 207	237 193 212	240 179 158	239 166 153	239 154 152	238 145 181	

¹ No limit.

### ADMINISTRATIVE PROCEDURE

§ 3.711 Application for international broadcast stations. (a) If the application is for a construction permit or for modification of an existing authorization, FCC Form 309 shall be filed; if for a license, FCC Form 310 shall be filed; if for a renewal of license, FCC Form 311 shall be-filed.

Note: Until these forms are revised, information required by these Rules and not required by the forms shall be submitted as a supplement to the application and will be considered a part thereof.

(b) 'Authorizations issued to international broadcast stations by the Commission will not specify the frequencies or hours of use, but will be authorizations to permit the construction or use of a particular transmitting equipment combination and related antenna systems for international broadcasting.

Note: Requests for the use of frequencies and frequency hours for transmissions to specific target areas should be submitted separately as provided in § 3.702.

(c) In the case of applications for authorizations to permit contract operations, as defined in § 3.701 (n), the contracting agency and contract number should be indicated for each operation.

§ 3.712 Full disclosures. Each application shall contain full and complete disclosures with regard to the real party or parties in interest, and their legal, technical, financial, and other qualifications, and as to all matters and things required to be disclosed by the application forms.

§ 3.713 Installation of apparatus. Applications for construction permit or modification thereof, involving the installation of new transmitting apparatus, shall be filed at least 60 days prior to the contemplated installation.

§ 3.714 Period of construction. Each construction permit will specify a maximum of 60 days from the date of granting thereof as the time within which construction of the station shall begin, and a maximum of six months thereafter as the time within which construction shall be completed and the station ready for operation, unless otherwise determined by the Commission upon proper showing in any particular case.

§ 3.715 Forfeiture of construction permits; extension of time. (a) A construction permit shall be automatically forfeited if the station is not ready for operation within the time specified therein or within such further time as the Commission may have allowed for completion, and a notation of the forfeiture of any construction permit under this provision will be placed in the records of the Commission as of the expiration date.

(b) An application (FCC Form 701) for extension of time within which to construct a station shall be filed at least 30 days prior to the expiration date of such permit if the facts supporting such application for extension are

known to the applicant in time to permit such filing. In other cases such applications will be accepted upon a showing satisfactory to the Commission of sufficient reasons for filing within less than 30 days prior to the expiration date. Such applications will be granted upon a specific and detailed showing that the failure to complete was due to causes not under the control of the grantee, or upon a specific and detailed showing of other matters sufficient to justify the extension.

(c) If a construction permit has been allowed to expire for any reason, application may be made for a new permit on FCC Form 321, "Application for Construction Permit to Replace Expired Permit."

§ 3.716 Equipment tests. (a) During the process of construction of an international broadcast station, the permittee after notifying the Commission and Engineer in Charge of the radio district in which the station is located may, without further authority of the Commission, conduct equipment tests for the purpose of such adjustments and measurements as may be necessary to assure compliance with the terms of the construction permit, the technical provisions of the application therefore, and the rules and regulations. No programming shall be conducted during equipment tests.

(b) The Commission may notify the permittee to conduct no tests or may cancel, suspend, or change the date for the beginning of equipment tests as and when such action may appear to be in the public interest, convenience, and necessity.

(c) Equipment tests may be continued so long as the construction permit shall remain valid.

(d) Inspection of a station will ordinarily be required during the equipment test period. After construction and after adjustments and measurements have been completed to show compliance with the terms of the construction permit, the technical provisions of the application therefore, and the rules and regulations, the permittee should notify the Engineer in Charge of the radio district in which the station is located that it is ready for inspection.

(e) The authorization for tests embodied in this section shall not be construed as constituting a license to operate but as a necessary part of

construction.

### § 3.717 [Reserved.]

§ 3.718 Normal license period. All international broadcast station licenses will be issued so as to expire at the hour of 3 a.m. eastern standard time and will be issued for a normal license period of 1 year expiring November 1.

§ 3.719 License; simultaneous modification and renewal. When an application is granted by the Commission necessitating the issuance of a modified license less than 60 days prior to the expiration date of the license sought to be modified, and an application for renewal of said license is granted subsequent or prior thereto (but within 30 days of expiration of the present license) the modified license as well as the renewal license shall be issued to conform to the combined action of the Commission.

§ 3.720 Renewal of license. (a) Unless otherwise directed by the Commission, each application for renewal of an international broadcast station license shall be filed at least 80 days prior to the expiration date of the license sought to be renewed (FCC Form 311). No application for renewal of license of an international broadcast station will be considered unless there is on file with the Commission, the information currently required by §§ 1.341-1.344 of this chapter reference to which by date and file number shall be included in the application.

(b) Whenever the Commission regards an application for a renewal of an international broadcast station license as essential to the proper conduct of a hearing or investigation, and specifically directs that it be filed by a date certain, such application shall be filed within the time thus specified. If the licensee fails to file such application within the prescribed time, the hearing or investigation shall proceed as if such renewal application had been received.

### § 3.721 [Reserved.]

§ 3.722 Repetitious applications. (a) Where an applicant has been afforded an opportunity to be heard with respect to a particular application for a new international broadcast station, or for change of existing service or facilities, and the Commission has, after hearing or default, denied the application or dismissed it with prejudice, the Commission will not consider another application for a station of the same class to serve in whole or in part the same area, by the same applicant or by his successor or assignee, or on behalf of or for the benefit of the original parties in interest, until after the lapse of 12 months from the effective date of the Commission's order.

(b) Where an appeal has been taken from the action of the Commission in denying a particular application, another application for the same class of broadcast station and for the same area, in whole or in part, filed by the same applicant or by his successor or assignee, or on behalf or for the benefit of the origmal parties in interest, will not be considered until the final disposition of

such appeal.

§ 3.723 Assignment or transfer of control-(a) Voluntary. Application for consent to voluntary assignment of an international station construction permit or license or for consent to voluntary transfer of control of a corporation holding an international station construction permit or license shall be filed with the Commission on FCC Form 314 (Assignment of License), FCC Form 315 (Transfer of Control) or FCC Form 316 (Short Form) at least 60 days prior to the contemplated effective date of assignment or transfer of control.

(b) Pro forma. Assignment or transfer applications shall be filed on FCC

Form 316 where:
(1) There is an assignment from an individual or individuals (including partnerships) to a corporation owned

and controlled by such individuals or partnerships without any substantial change in their relative interests;

(2) There is an acagnment from a corporation to its individual stockholaers without effecting any substantial change in the disposition of their interests;

(3) There is an assignment or transfer by which certain partners or stockholders retire but no new ones are brought in, provided that the interest transferred is not a controlling one;

(4) There is a corporate reorganization which involves no substantial change in the beneficial ownership of the

corporation;

(5) There is an involuntary transfer to an Executor, Administrator or other court appointed officer caused by death or legal disability except that this form does not cover assignments (or transfers) from the Executor, Administrator or other court appointed officers to the ultimate beneficiary.

(6) There is an assignment or transfer from a corporation to a wholly owned subsidiary thereof or vice versa, or where there is an assignment from a corporation to a corporation owned or controlled by the assignor stockholders without substantial change in their interests;

(7) There is an assignment of less than a controlling interest in a partner-

(c) Involuntary. In the event of the death or legal disability of a permittee or licensee, or a member of a partnership, or a person directly or indirectly in control of a corporation, which is a permittee or licensea:

(1) The Commission shall be notified in writing promptly of the occurrence of such death or legal disability, and

(2) Within thirty days after the occurrence of such death or legal disability, application on FCC Form 316 shall be filed for consent to involuntary assignment of such international station permit or license or for involuntary transfer of control of such corporation to a person or entity legally qualified to succeed to the foregoing interests under the laws of the place having jurisdiction over the estate involved.

### LICENSING POLICIES

§ 3.731 Licensing requirements; necessary showing. A license for an international broadcast station will be issued only after a satisfactory showing has been made in regard to the following, among others:

(a) That there is a need for the international broadcast service proposed to be rendered.

(b) That the necessary program sources are available to the applicant to render an effective international service.

(c) That directive antennas other technical facilities will be employed to deliver maximum signals to the target area or areas for which the service 13 designed.

(d) That the production of the program service and the technical operation of the proposed station will be conducted by qualified persons.

(e) That the applicant is technically and financially qualified and possesses adequate technical facilities to carry forward the service proposed.

(f) That the public interest, convenience and necessity will be served through the operation of the proposed station.

#### EQUIPMENT

- § 3.751 Power requirement. No international broadcast station will be authorized to install equipment or licensed for operation with a power less than 50 kilowatts.
- § 3.752 Frequency control. The transmitter of each international broadcast station shall be equipped with automatic frequency control apparatus so designed and constructed that it is capable of maintaining the operating frequency within the following limits:
- (a) Until July 1, 1956, the frequency tolerance will be plus or minus 0.005 percent.
- (b) After July 1, 1956, the frequency tolerance will be plus or minus 0.003 percent.
- § 3.753 Antenna. The antenna shall be so designed and operated that the signal (field intensity) toward the specific foreign country or countries served shall be at least 3.16 times the average effective signal from the station (power gain of 10)
- § 3.754 Frequency monitors. (a) The licensee of each international broadcast station shall operate at the transmitter a frequency monitor independent of the frequency control of the transmitter.
- (b) The frequency monitor shall be designed and constructed in accordance with good engineering practice and shall have an accuracy sufficient to determine that the operating frequency is within one-half of the allowed tolerance.
- § 3.755 Modulation monitors. The licensee of each international broadcast station shall have in operation at the transmitter a modulation monitor.
- § 3.756 Required transmitter performance. (a) The construction, installation, operation, and performance of the international broadcast transmitter system shall be in accordance with good engineering practice.

Note: The establishment of specific levels of attenuation for spurious emissions will be the subject of further Rule Making in Docket 10962 pending the completion of additional studies of this matter.

- (b) In addition to the requirements of paragraph (a) of this section in the event spurious emissions cause harmful interference, such additional steps as may be necessary to eliminate the interference must be taken immediately by the licensee.
- § 3.757 Auxiliary transmitters. Upon showing that a need exists for the use of auxiliary transmitters in addition to the regular transmitters of an international broadcast station, a license therefor may be issued provided that:
- (a) Auxiliary transmitters may be installed either at the same location as the main transmitters or at another location.
- (b) A licensed operator shall be in control whenever auxiliary transmitters are placed in operation.

- (c) The auxiliary transmitters shall be maintained so that they may be put into immediate operation at any time for the following purposes:
- (1) The transmission of the regular programs upon the failure of the main transmitters.
- (2) The transmission of regular programs during maintenance or modification work on the main transmitter, necessitating discontinuance of its operation for a period not to exceed 5 days. (This includes the equipment changes which may be made without authority as set forth elsewhere in the Rules and Regulations or as authorized by the Commission by letter or by construction permit. Where such operation is required for periods in excess of 5 days, request therefor shall be in accordance with § 1.324 of this chapter.)
- (3) Upon request by a duly authorized representative of the Commission.
- (d) The auxiliary transmitters shall be tested at least once each week to determine that they are in proper operating condition and that they are adjusted to the proper frequency except that in the case of operation in accordance with paragraph (c) of this section during any week, the test in that week may be omitted provided the operation under paragraph (c) of this section is satisfactory. A record shall be kept of the time and result of each test. Such records shall be retained for a period of two years.
- (e) The auxiliary transmitters shall be equipped with satisfactory control equipment which will enable the maintenance of the frequency emitted by the station within the limits prescribed by the regulations in this part.
- (f) The operating power of an auxiliary transmitter may be less than the authorized power of the main transmitters, but in no event shall it be greater than such power.
- § 3.758 Alternate main transmitters. The licensee of an international broadcast station may be licensed for alternate main transmitters provided that a technical need for such alternate transmitters is shown and that the following conditions are met:
- (a) Both transmitters are located at the same place.
- (b) Both transmitters shall have the same power rating.
- (c) Both transmitters shall meet the construction, installation, operation, and performance requirements of good engineering practice.
- § 3.759 Changes in equipment and antenna system. Licensees of international broadcast stations shall observe the following provisions with regard to changes in equipment and antenna system:
- (a) No changes in equipment shall be made:
- (1) That would result in the emission of signals outside of the authorized chan-
- (b) Specific authority, upon filing formal application (FCC Form 309) therefor, is required for any of the following changes:

- (1) Changes involving an increase or decrease in the power rating of the transmitters
- (2) A replacement of the transmitters as a whole.
- (3) Change in the location of the transmitting antenna
- (4) Change in location of main studio, if it is proposed to move the main studio to a different city from that specified in the license.
- (5) Change in the power delivered to the antenna.
- (6) Change in frequency control and/ or modulation system.
- (c) Other changes, except as above provided for in this section may be made at any time without the authority of the Commission, provided that the Commission shall be promptly notified thereof and such changes shall be shown in the next application for renewal of license.

### TECHNICAL OPERATION

- § 3.761 Time of operation. (a) All international broadcast stations will be licensed for unlimited time operation except as may be directed by the Commission from time to time. In an emergency however, when, due to causes beyond the control of the licensee, it becomes impossible to continue operation, the station may cease operation for a period not to exceed 10 days, provided that the Commission and the Engineer in Charge of the radio district in which the station is located shall be notified in writing immediately after the emergency develops,
- (b) Persons desiring to enter into a voluntary sharing arrangement of an international channel may file application therefor with the Commission. Copies of the time-sharing agreement should be filed with the application.
- § 3.762 Station inspection. The 11-censee of any international broadcast station shall make the station available for inspection by representatives of the Commission at any reasonable hour.
- § 3.763 Station license, posting of. The original of each station license shall be posted in the transmitter room.
- § 3.764 Operator requirements. One or more licensed radiotelephone first class operators shall be on duty at the place where the transmitting apparatus of each station is located and in actual charge thereof whenever it is being operated. The original license (or FCC Form 759) of each station operator shall be posted at the place where he is on duty. The licensed operator on duty and in charge of an international broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another station or stations in accordance with the class of operator's license which he holds and by the rules and regulations governing such stations. However, such duties shall in nowise interfere with the operation of the broadcast transmitter.
- § 3.765 Operating power; how determined. The operating power, and its maintenance, of each international broadcast station shall be in conformity with good engineering practice.

- § 3.756 Modulation. The percentage of modulation of the transmissions shall be maintained as high as possible consistent with good quality of transmission and good broadcast practice and in no case less than 50 percent nor more than 100 percent on peaks of frequent recurrence during any selection which normally is transmitted at the highest level of the program under consideration.
- § 3.767 Frequency tolerance. The operating frequencies of international broadcast station transmitters shall, at all times, be maintained within the frequency tolerances specified in § 3.752.
- § 3.768 Antenna structure, marking and lighting. Where an antenna structure(s) is required to be painted or lighted see § 17.37, Inspection of tower lights and associated control equipment; § 17.39, Cleaning and repainting; § 17.40 Time when lights shall be exhibited, § 17.41, Spare lamps; and § 17.42, Lighting equipment; of Part 17 of this chapter (Construction, Marking and Lighting of Antenna Structures)
- § 3.769 Discontinuance of operation. The licensee of each station, except stations operating in Alaska, shall notify the Engineer in Charge of the radio district in which the station is located of any of the following changes in the status of such station at least two days before such change:
- (a) Temporary discontinuance of operation for a period of ten days or more;
- (b) The date of resumption of operation after temporary discontinuance of operation for a period of ten days or more:
- (c) Permanent discontinuance of operation.

In all cases of permanent discontinuance of operation the licensee shall, in addition to notifying the Engineer in Charge of the radio district in which the station is located of intention to discontinue operation, immediately forward the station license to the Washington, D. C., office of the Commission for cancellation.

### OTHER OPERATION

- § 3.781 Logs. The licensee or permittee of each international broadcast station shall maintain program and operating logs in the following manner:
  - (a) In the program log:
- (1) An entry of the time each station identification announcement (call letters and location) is made.
- (2) An entry briefly describing each program broadcast, such as "music" "drama" "speech" etc., together with the name or title thereof, language, and the sponsor's name, with the time of the beginning and ending of the complete program.
- (3) An entry showing, for each program of network origin, the name of the network originating the program.
  - (b) In the operating log:
- (1) An entry of the time the station begins to supply power to the antenna, and the time it stops.
- (2) An entry of the time the program begins and ends.

- (3) An entry of each interruption to the carrier wave, its cause, and duration.
- (4) An entry of the following each 30 minutes:
- (i) Operating constants of last radio stage of the transmitter (total plate current and plate voltage)
- (ii) Frequency monitor reading.
- (5) A log must be kept of all experimental operation. If the entries required above are not applicable thereto, then the entries shall be made so as to fully describe the operation.
- (c) Where an antenna structure(s) is required to be illuminated, see § 17.38, Recording of tower light inspections in the station record, of Part 17 of this chapter (Construction, Marking and Lighting of Antenna Structures)
- § 3.782 . Logs; retention of. Logs of international broadcast stations shall be retained by the licensee or permittee for a period of two years: Provided, however, That logs involving communications incident to a disaster or which include communications incident to or involved in an investigation by the Commission and concerning which the licensee or permittee has been notified, shall be retained by the licensee or permittee until he is specifically authorized in writing by the Commission to destroy them: Provided, further, That logs incident to or involved in any claim or complaint of which the licensee or permittee has notice shall be retained by the licensee or permittee until such claim or complaint has been fully satisfied or until the same has been barred by statute limiting the time for the filing of suits upon such claims.
- § 3.783 Logs; by whom kept. Each log shall be kept by the person or persons competent to do so, having actual knowledge of the facts required, who shall sign the log when starting duty and again when going off duty. The logs shall be made available upon request by an authorized representative of the Commission.
- § 3.784 Log form. The log shall be kept in an orderly manner, in suitable form, and in such detail that the data required for the particular class of station concerned are readily available. Key letters or abbreviations may be used if proper meaning or explanation is contained elsewhere in the log.
- § 3.785 Correction of logs. No log or portion thereof shall be erased, obliterated, or willfully destroyed within the period of retention provided by the rules. Any necessary correction may be made only by the person originating the entry who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction.
- § 3.786 Rough logs. Rough logs may be transcribed into condensed form, but in such case, the original log or memoranda and all portions thereof shall be preserved and made a part of the complete log.
- § 3.787 Station identification. (a) A licensee of an international broadcast station shall make station identification

- announcement (call letters and location) at the beginning and ending of each time of operation and during the operation on the hour.
- (b) Station identification, program. announcements, and oral continuity shall be made with international significance (language particularly) which is designed for the foreign country or countries for which the service is primarily intended.
- (c) Identification announcements during operation need not be made when to make such announcement would interrupt a single consecutive speech, play, religious service, symphony concert, or any type of production. In such cases the identification announcement shall be made at the first interruption of the entertainment continuity and at the conclusion thereof.
- § 3.788 Service; commercial or sponsored programs. (a) A licensee of an international broadcast station shall render only an international broadcast service which will reflect the culture of this country and which will promote international goodwill, understanding, and cooperation. Any program solely intended for, and directed to an audience in the continental United States does not meet the requirements for this service.
- (b) Such international broadcast service may include commercial or sponsored programs: *Provided*. That:
- (1) Commercial program continuities give no more than the name of the sponsor of the program and the name and general character of the commodity, utility or service, or attraction advertised.
- (2) In case of advertising a commodity, the commodity is regularly sold or is being promoted for sale on the open market in the foreign country or countries to which the program is directed in accordance with paragraph (c) of this section.
- (3) In case of advertising an American utility or service to prospective tourists or visitors to the United States, the advertisement continuity is particularly directed to such persons in the foreign country or countries where they reside and to which the program is directed in accordance with paragraph (c) of this section.
- (4) In case of advertising an international attraction (such as a world fair, resort, spa, etc.) to prospective tourists or visitors to the United States, the oral continuity concerning such attraction is consistent with the purpose and intent of this section.
- (5) In case of any other type of advertising, such advertising is directed to the foreign country or countries to which the program is directed and is consistent with the purpose and intent of this section.
- (c) The geographic areas to be served by international broadcast stations are the foreign standard target areas shown in Figure 1 of § 3.792, or foreign non-standard target areas as provided in § 3.702 (d) and directive antennas shall be employed to direct the transmission to these specific target areas.
- (d) An international broadcast station may transmit the program of a standard

broadcast station or network system: Provided, The conditions in paragraph (b) of this section in regard to any commercial continuities are observed and when station identifications are made, only the call letter designation of the international station is given on its assigned frequency. And provided further That in the case of chain broadcasting the program is not carried simultaneously by another international station (except another station owned by the same licensee operated on a frequency in a different group to obtain continuity of signal service) the signals from which are directed to the same area. (See section 3 (p) of the Communications Act of 1934 for the definition of "chain broadcasting.")

§ 3.789 Sponsored programs; announcement of. (a) In the case of each program for the broadcasting of which money, services, or other valuable consideration is either directly or indirectly paid or promised to, or charged or received by, any radio broadcast station, the station broadcasting such program shall make, or cause to be made, an appropriate announcement that the program is sponsored, paid for, or furnished, either in whole or in part.

(b) In the case of any political program or any program involving the discussion of public controversial issues for which any films, records, transcriptions, talent, scripts, or other material or services of any kind are furnished, either directly or indirectly, to a station as an inducement to the broadcasting of such program, an announcement shall be made both at the beginning and conclusion of such program on which such maternal or services are used that such films. records, transcriptions, talent, scripts, or other material or services have been furnished to such station in connection with the broadcasting of such program: Provided, however That only one such announcement need be made in the case of any such program of 5 minutes' duration or less, which announcement may be made either at the beginning or conclusion of the program.

(c) The announcement required by this section shall fully and fairly disclose the true identity of the person or persons by whom or in whose behalf such payment is made or promised, or from whom or in whose behalf such services or other valuable consideration is received, or by whom the material or services referred to in paragraph (b) of this section are furnished. Where an agent or other person contracts or otherwise makes arrangements with a station on behalf of another, and such fact is known to the station, the announcement shall disclose the identity of the person or persons in whose behalf such agent is acting instead of the name of such agent.

(d) In the case of any program, other than a program advertising, commercial products or services, which is sponsored, paid for or furnished, either in whole or in part, or for which material or services referred to in paragraph (b) of this section are furnished, by a corporation, committee, association or other unincorporated group, the announcement required by this section, shall disclose the name of such corporation, committee, association, or other unincorporated group. In each such case the station shall-require that a list of the chief executive officers or members of the executive committee or of the board of directors of the corporation, committee, association, or other unincorporated group shall be made available for public inspection at one of the international broadcast stations carrying the program.

(e) In the case of programs advertising commercial products or services, an announcement stating the sponsor's corporate or trade name or the name of the sponsor's product, shall be deemed sufficient for the purposes of this section and only one such announcement need be made at any time during the course of the program.

§ 3.790 Rebroadcast. (a) The licensee of an international broadcast station may, without further authority of the Commission, rebroadcast the program of a United States standard, FM non-commercial educational, or FM

broadcast station, provided the Commission is notified of the call letters of each station rebroadcast and the licensee certifies that express authority has been received from the licensee of the station originating the program. The notice and certification of consent must be given within 3 days of any single rebroadcast, but in case of the regular practice of rebroadcasting certain programs of another broadcast station several times during a license period, notico and certification of consent must be given for the ensuing license period with the application for renewal of license, or at the beginning of such rebroadcast practice if begun during a license period.

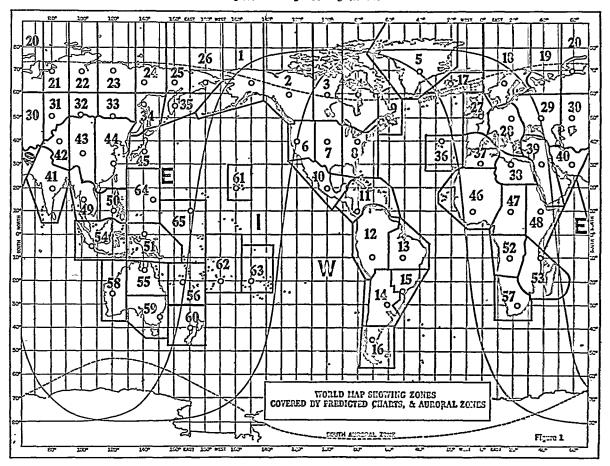
Note: The broadcasting of a program relayed by a remote pickup broadcast station is not considered a rebroadcast.

- (b) No licensee of an international broadcast station shall rebroadcast the programs of any other class of United States radio station without written authority having first been obtained from the Commission.
- c) A licensee of an international broadcast station may authorize the rebroadcast of its programs by any station outside the limits of the North American continent without permission from the Commission: Provided, That the station rebroadcasting the programs cannot be received consistently in the United States.
- § 3.791 Supplemental report with renewal application. A supplemental report shall be filed with and made a part of each application for renewal of license and shall include statements of the following:

(a) The number of hours operated on each frequency, listing contract operations and private operations separately.

(b) Outline of reports of reception and interference and conclusions with regard to propagation characteristics of assigned frequencies. (If such information is not available to the applicant in the case of contract operations, a statement to this effect will be considered adequate.)

§ 3.792 Engineering chart.



### SUBPART G-CONELRAD

### SCOPE AND OBJECTIVE

§ 3.901 Scope of subpart. This subpart applies to all standard, FM and TV broadcast stations and is for the purpose of providing for operation of certain stations located within the Continental United States during periods of enemy air attack or imminent threat thereof.

§ 3.902 Object of plan. The aim of this plan is to minimize the navigational aid that may be obtained from the continued operation of broadcast stations while at the same time providing for transmission of civil defense information to the public. During CONELRAD radio-alert periods, when not broadcasting civil defense programs or alert or all-clear notification messages, these stations may, on their own responsibility, broadcast such other programs as they may desire.

### DEFINITIONS

§ 3.910 CONELRAD The word CONELRAD is a contraction of the words Control of Electromagnetic Radiation and is the general name given to required procedures under authority of Executive Order 10312 dated December 10, 1951 (3 CFR, 1951 Supp.)

§ 3.911 Air Defense Control Center (ADCC). An air operations center from which an air division (defense) commander supervises and coordinates air defense activities within an air defense sector, including dissemination of warn-

ings, identification and security control of air traffic and utilization of available combat forces in support of the national air defense effort.

§ 3.912 Basic key station. A station that receives the radio alert by telephone directly from the ADCC. Basic key stations relay radio alerts to other stations by radio and by telephone.

§ 3.913 Relay key station. A station that receives the radio alert by telephone or radio broadcast from a basic key station or other relay key station. Relay key stations pass the radio alert on to other stations by radio broadcast or telephone.

§ 3.914 Skywave key station. A station designated to disseminate a radio alert by broadcast primarily during the experimental period as an alternate for local key stations which may not be in operation. It will normally be capable of disseminating the alert over a wide area by means of skywave transmission.

§ 3.915 Radio alert. The radio alert is the Department of Defense order to operate stations in accordance with CONELRAD requirements for a period of time, as determined by the Air Division Commander or higher military authority.

§ 3.916 Radio all clear. The radio all clear is the Department of Defense order to discontinue CONELRAD requirements, as imposed by an outstand-

ing radio alert, with authorization to return to normal operation. It is initiated by the Air Division Commander or higher military authority.

§ 3.917 Cluster A cluster is a group of broadcast stations serving a single area, all operating on the same CONEL-RAD system frequency. All stations in a cluster will be inter-connected by wire lines and will carry a common program.

§ 3.918 Sequential control lines. Sequential control lines are the wire lines inter-connecting the several stations in a cluster. By means of a mechanical, manual or electronic device at a central control point, the stations in a cluster are turned on and off in sequence over the circuits provided by the sequential control lines. In some cases these lines may also carry the cluster program.

§ 3.919 CONELRAD manual. The CONELRAD manual is the document containing the detailed description of how broadcast stations will be alerted and operated in the CONELRAD system. The manual will be subject to modification from time to time as experience indicates a need for such changes.

### SUPERVISION

§ 3.920 Zones. CONELRAD activities under the authority of FCC are under the immediate supervision of three FCC Zone Supervisors whose respective zones are coextensive with the three Air Defense Force Areas. (Each broadcast

station will be furnished the name and address of the Zone Supervisor of its Zone.)

§ 3.921 Divisions. Each zone is divided into several divisions corresponding to the USAF Air Divisions. An FCC Coordinating Engineer is assigned to each Air Division and has responsibility under the Zone Supervisor for all CONELRAD activities under the authority of FCC in his division.

### RADIO ALERTS

§ 3.930 Notification of a radio alert.

(a) All notifications of radio alerts and all clears shall be issued by the Air Defense Control Center(s) (ADCC) under the authority of the Air Division Commander or his duly authorized representative, to all basic key stations. All relay key stations will, in turn be notified by the basic key stations or other relay key stations. The remaining stations will then be notified by basic key stations or relay key stations. These notifications will be accomplished either by telephone messages or by radio broadcast.

(b) During the experimental period many of the regular key stations may be off the air. All standard, FM and TV stations will be supplied with the list of skywave key stations at least one of which must be monitored during any period of operation when the regularly used key station is not on the air.

§ 3.931 Reception of a radio alert. All standard, FM and TV broadcast stations, including basic key and relay key stations, must install the necessary equipment to receive notifications of radio alerts and radio all clears by means of reception of radio broadcast messages, and must maintain this equipment in a state of readiness for reception, including arrangements for human listening watch or automatic alarm devices or both. Such equipment should have its termination at the transmitter control location.

§ 3.932 Operation during a radio alert. (a) Immediately upon receipt of a radio alert, either by radio broadcast or telephone, all standard, FM and TV broadcast stations, including such stations operating under equipment or program test authority, will follow the prescribed procedure and transmit an approved sign-off message as set forth in the CONELRAD Manual For Broadcast Stations, then remove the transmitter from the air.

(b) Those stations which are authorized to participate in the operating system will immediately take necessary steps and begin operations on assigned frequencies in accordance with the terms of their CONELRAD authorizations and current operating instructions. All other broadcast stations will observe radio silence until the radio all clear.

(c) No identification may be broadcast between the time the radio alert is received and the time the radio all clear is announced, unless expressly authorized by the FCC. The transmission of any information which would serve to identify the geographical location of the station is prohibited.

(d) A station operating in the CONELRAD system may transmit in

accordance with its CONELRAD authorization during a radio alert beyond its normal hours and nothing in its regular license or other instrument of authorization shall prevent such operation in the CONELRAD system.

(e) Prior to commencing routine operation or originating any emissions under program test, equipment test, experimental or other authorization or for any other purpose, licensees or permittees shall first ascertain whether a state of radio alert exists and if so shall refrain from operation or operate in the CONELRAD system whichever is appropriate.

### RADIO ALL CLEAR

§ 3.940 Notification of a radio all elear The radio all clear notification will be transmitted through the same channels as the radio alert. Stations operating in the CONELRAD system will transmit the radio all clear message on the CONELRAD system frequency. Key stations will, as soon as possible thereafter, follow the prescribed procedure and broadcast the radio all clear message on their regular operating frequency. All stations, including FM and TV stations, upon resuming regular operation will follow the prescribed procedure and immediately broadcast the radio all clear message.

### SYSTEM OPERATION

§ 3.950 Procedure. Each broadcast station permitted to operate during a radio alert must observe operating procedures for the mode of operation to which it is assigned, as set forth in detail in the CONELRAD Manual For Broadcast Stations.

§ 3.951 Participation. (a) Any standard broadcast station desiring to participate in a CONELRAD operating system should contact the Zone Supervisor, indicate the station's willingness to make such technical modification of the station equipment as might be necessary to permit operation on a system frequency and with such power limitations as might be necessary. The Commission will then issue a CONELRAD authorization to the station specifying the frequency to be used by the station. Stations which have indicated a willingness to participate in CONELRAD on a voluntary basis prior to the effective date of this rule need not take any further steps.

(b) At such time as technical consideration may warrant the inclusion of FM and TV broadcast stations within the operating CONELRAD system, appropriate announcement will be made by the Commission and application for participation made as above set forth.

(c) Any station participating in CONELRAD system operations may withdraw from the system by giving thirty days' notice to the FCC Zone Supervisor in writing and by submitting its CONELRAD authorization for cancellation.

(d) Broadcast stations are specifically exempt from complying with § 3.57 while operating under their CONELRAD authorization.

### TESTS

§ 3.960 Alerting system. Tests of the alerting system will be conducted periodically.

§ 3.961 Sequential control lines. Sequential control and program lines must be tested at frequent intervals and results reported in the prescribed manner to the FCC Zone Supervisor.

§ 3.962 Entire system. Tests of the entire system will be conducted from time to time. During such tests, all stations which are authorized to operate in the CONELRAD system will operate in accordance with terms of the CONELRAD authorization. Other stations will not be required to go off the air during such tests but will be subject to any interference which might result from the CONELRAD operation. Such tests will be scheduled to take place during the experimental period. Industry representatives will be consulted prior to conducting CONELRAD system tests to obtain views relative to the action and to coordinate the activity.

§ 3.963 Equipment. The licensee of each station authorized to participate in CONELRAD system operation shall make such tests of his equipment as may be necessary to assure it is ready for instant use.

§ 3.964 Log entries. Appropriate entries of all tests shall be made in the station log.

- DRILLS

§ 3.970 Notification of a drill. At some time it may be necessary to conduct an Air Defense Drill under conditions of simulated attack. Industry representatives will be consulted prior to conducting CONELRAD drills to obtain views relative to the action and to coordinate the activity. Such drills will only be called when the Department of Defense, the Office of Defense Mobilization, and the Federal Communications Commission concurrently agree that the drill is necessary. All stations will be notified well in advance of such a drill.

§ 3.971 Operation during a drill. During a drill, all standard, FM and TV broadcast stations will take the same steps as such stations would be required to take in the event of an actual radio alert under this part of the rules and current operating instructions as set forth in the CONELRAD Manual For Broadcast Stations, except for special drill messages.

[F. R. Doc. 55-9821; Filed, Dec. 8, 1955; 8:45 a.m.]

# TITLE 15—COMMERCE AND FOREIGN TRADE

Chapter II—National Bureau of Standards, Department of Commerce

PART 235-TRANSCRIPT SERVICES

In accordance with the public information requirements of the Administrative Procedure Act, Information regarding Transcript Services provided by the National Bureau of Standards (13 F R. 8371) is hereby amended. Notice

and hearing on the fees indicated are unnecessary for the reason that such procedure, because of the nature of these rules, serves no useful purpose (5 U. S. C. 1003a) This document becomes effective upon publication in the Federal Register.

Note: The fee for item 31–2.1 is a composite fee which includes a charge of \$0.50 made since April 1, 1954, to include the Department of Commerce completion of certificate and seal.

- 1. Former §§ 235.1, 235.2, and 235.3 are hereby deleted.
- 2. Former § 235.4 is redesignated § 235.1 and amended to indicate a change in the procedure to be employed for obtaining motion picture films and to add new titles to the list.
- 3. Former § 235.99 is redesignated § 235.2 and amended to indicate a change in the fee.

Sec. 235.1 Motion pictures. 235.2 Certification of publications.

AUTHORITY: §§ 235.1 and 235.2 issued under R. S. 161; 5 U. S. C. 22. Interpret or apply sec. 1, 49 Stat. 292; 15 U. S. C. 189a.

§ 235.1 Motion pictures. The following films are available for loan upon payment of express charges both ways. Copies may also be purchased by writing to the Office of Technical Information, National Bureau of Standards, for authorization-to-purchase forms. Completed forms, upon approval by the National Bureau of Standards, may be used to authorize duplication of the film by a commercial firm who will bill the purchaser direct.

All films are 16 mm sound and color.

Item and description	Co
34-1.1-"Silicate Cement" 657 feet,	
running time 18 minutes	\$60.
34-1.2-"Dental Amalgam: Failure	
Caused by Moisture Con-	
tamination" 502 feet, run-	
ning time 13 minutes	47
34-1.3-"Denture Resin" 657 feet,	
running time 18 minutes	60
34-1.4-"The Casting of Dental Gold	
Alloys: Thermal Expansion	
Technique" 632 feet, run-	
ning time 16½ minutes	58
34-1.5-"A Method of Mixing Sili-	
cate Cement", 329 feet, run-	
ning time 8½ minutes	30
34-1.6-"Hazards of Dental Radiog-	
raphy" 505 feet, running	
time 13 minutes	47
34-1.7-"Dental Materials: Specifica-	
tion and Certification" 766	
feet, running time 21 min-	

34-1.9—"Four Experiments in Hydraulics" 607 feet, running time 16½ minutes_____ 56.00
34-1.10—"A True Standard" 438 feet, running time 12 minutes__ 41.00

feet, running time 10 min-

34-1.8-"Dental Burs in Action" 365

70,00

42.00

Prices listed are approximate current costs, not including shipment charges, and are indicated for informational purposes only. Actual charges billed are subject to agreement between the purchaser and the firm performing the work.

No. 239---15

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§ 235.2 Certification of publications.

Item and description Fcc
31-2.1—Certification of any Bureau
publication whether printed
or processed (not including
cost of the publication) ____ 01.50

For information concerning titles and prices of Bureau publications address inquiries to the Office of Publications, National Bureau of Standards, Washington 25. D. C.

A. V. Asrni, Director,

National Bureau of Standards.

Approved:

Sinclair Weeks, Secretary of Commerce.

[F. R. Doc. 55-9924; Filed, Dec. 8, 1955; 8:48 a. m.]

### TITLE 7—AGRICULTURE

Chapter IX—Agricultural Marketing Service (Marketing Agreements and Orders), Department of Agriculture

[Navel Orange Reg. 641

PART 914—NAVEL ORANGES GROWN IN ARIZONA AND DESIGNATED PART OF CALI-FORNIA

### LIMITATION OF HANDLING

§ 914.364 Navel Orange Regulation 64—(a) Findings. (1) Pursuant to the marketing agreement, as amended, and Order No. 14, as amended (7 CFR Part 914; 19 F. R. 2941), regulating the handling of navel oranges grown in Arizona and designated part of California, effective September 22, 1953, under the applicable provisions of the Agricultural Marketing Agreement Act of 1937, as amended (7 U. S. C. 601 et seq.), and upon the basis of the recommendation and information submitted by the Navel Orange Administrative Committee, established under the said amended marketing agreement and order, and upon other available information, it is hereby found that the limitation of handling of such navel oranges, as hereinafter provided, will tend to effectuate the declared policy of the act.

(2) It is hereby further found that it is impracticable and contrary to the public interest to give preliminary notice, engage in public rule-making procedure, and postpone the effective date of this section until 30 days after publication thereof in the FEDERAL REGISTER (60 Stat. 237; 5 U.S. C. 1001 et seq.) because the time intervening between the date when information upon which this section is based became available and the time when this section must become effective in order to effectuate the declared policy of the act is insufficient, and a reasonable time is permitted, under the circumstances, for preparation for such effective time; and good cause exists for making the provisions hereof effective as hereinafter set forth. The Navel Orange Administrative Committee held an open meeting on December 1, 1955, after giving due notice thereof, to consider supply and market conditions for navel oranges and the need for regulation; interested persons were afforded an opportunity to

submit information and views at this meeting; the recommendation and supporting information for regulation during the period specified herein was promptly submitted to the Department after such meeting was held; the provisions of this section, including its effective time, are identical with the aforesaid recommendation of the committee, and information concerning such provisions and effective time has been disseminated among handlers of such navel oranges; it is necessary, in order to effectuate the declared policy of the act, to make this section effective during the period herein specified; and compliance with this section will not require any special preparation on the part of persons subject thereto which cannot be completed on or before the effective date hereof.

(b) Order. (1) During the period beginning at 12:01 a.m., P. s. t., December 11, 1955, and ending at 12:01 a.m., P. s. t., July 29, 1956, no handler shall handle any navel oranges, grown in District 2, which are of a size smaller than 2.31 inches in diameter, which shall be the largest measurement at a right angle to a straight line running from the stem to the blossom end of the fruit: Provided, That not to exceed 5 percent, by count, of the oranges contained in any type of container may measure smaller than 2.31 inches in diameter.

(2) As used in this section, "handle," "handler," and "District 2," shall have the same meaning as to when used in said amended order.

(Sec. 5, 49 Stat. 753, as amended; 7 U. S. C. 693c)

Dated: December 6, 1955.

[SEAL] S. R. SMITH,

Director Fruit and Vegetable

Division, Agricultural Mar
l:eting Service.

[F. R. Doc. 65-9327; Filed, Dec. 8, 1955; 8:48 a.m.]

### TITLE 26—INTERNAL REVENUE, 1954

Chapter I—Internal Revenue Service, Department of the Treasury

> Subthaptor G—Regulations Under Tax Conventions

[T.D. 6153]

PART 505—NETHERLANDS

### SUBPART—METHURLANDS ANTILLES

Release of excess tax withheld and exemption from, or reduction in rate of, withholding of tax at source in the case of residents of the Netherlands Antilles and of Netherlands Antilles corporations, as affected by the extension to the Netherlands Antilles of the income tax convention of April 29, 1948, between the United States and the Netherlands.

505.201 Introductory. 505.202 Dividends.

505.203 Dividends received by addressee not actual owner.

505.204 Interest.

505.203 Patent and copyright royalties.

503.203 Private pensions and life annuities.

505.207 Beneficiaries of a domestic estate or trust.

Release of excess tax withheld at 505.208 source.

Information to be furnished in 505.209 ordinary course. 505.210 Effective date.

AUTHORITY: §§ 505.201 to 505.210 issued under sec. 7805, 68A Stat. 917; 26 U. S. C.

§ 505.201 Introductory—(a) Pertinent provisions. The income tax convention of April 29, 1948, between the United States and the Netherlands, as supplemented by the protocol of June 15, 1955, between such Governments, was extended to the Netherlands Antilles subject to the limitations expressed in the notification of June 24, 1952, given by the Government of the Netherlands in accordance with Article XXVII of the convention. The convention as so extended to the Netherlands Antilles, hereinafter referred to as the convention, provides in part as follows, effective on and after January 1, 1955. For that purpose all references in the convention to the Netherlands or to one or the other Contracting State, as the case may be, shall be construed to refer to the Netherlands Antilles.

### ARTICLE I

- (1) The taxes which are the subject of the present Convention are:
- (a) In the case of the United States: the Federal income taxes.

(b) In the case of the Netherlands:

- (i) For the application of the provisions of the Convention other than Article XX, the income tax and the Netherlands taxes credited against it, the corporation tax and the Netherlands taxes credited against it, * * * and the tax on fees of directors and managers of corporations: and
- (ii) For the application of Articles XX to XXVIII inclusive (except Articles XXIV and XXVII), the capital accretions tax and the extraordinary capital tax.
- (2) The present Convention shall apply also to any other taxes of a substantially similar character imposed by either Contracting State subsequently to the date of signature of the present Convention, or, by the government of any overseas part of the Kingdom (in the case of the Netherlands) or overseas territory (in the case of the United States) to which the present Convention is extended under Article XXVII, subsequently to the date of the notification of extension.
- (3) In the event of appreciable changes in the fiscal laws of either of the Contracting States the competent authorities of the Contracting States will consult together.

### ARTICLE II

- (1) In the present Convention, unless the context otherwise requires:
- (a) The term "United States" means the United States of America, and when used in a geographical sense means the States, the Territories of Alaska and of Hawaii, and the District of Columbia.
- (b) The term "Netherlands" means only the Kingdom of the Netherlands in Europe.
- (c) The term "United States corporation" means a corporation, association or other organiation or juridical entity created in the United States or under the laws of the United States or of any State or territory of the United States.
- (d) The term "Netherlands corporation" means a corporation, association or other organization or juridical entity created in

the Netherlands or under the laws of the Netherlands.

(e) The terms "corporation of one Contracting State" and "corporation of the other Contracting State" means a United States corporation or a Netherlands corporation, as the context requires.

(f) The term "United States enterprise" means an industrial or commercial enterprise or undertaking carried on in the United States by a citizen or resident of the United States or by a United States corpora-

(g) The term "Netherlands enterprise" means an industrial or commercial enterprise or undertaking carried on in the Netherlands by a citizen or resident of the

Netherlands of a chizen of resident of the Netherlands or by a Netherlands corporation. (h) The terms "enterprise of one of the Contracting States" and "enterprise of the other Contracting State" mean a United States enterprise or a Netherlands enter-

prise, as the context requires.

- (i) The term "permanent establishment" when used with respect to an enterprise of one of the Contracting States, means a branch, factory, or other fixed place of busi-ness, but does not include an agency unless the agent has, and habitually exercises, a general authority to negotiate and conclude contracts on behalf of such enterprise or has a stock of merchandise from which he regularly fills orders on behalf of such enterprise. An enterprise of one of the Contracting States shall not be deemed to have a permanent establishment in the other Contracting State merely because it carries on business dealings in such other Contracting State through a bona fide commission agent, broker or custodian acting in the ordinary course of his business as such. The fact that an enterprise of one of the Contracting States maintains in the other Contracting State a fixed place of business exclusively for the purchase of goods or merchandise shall not of itself constitute such fixed place of business a permanent establishment of such enterprise. When a corporation of one Contracting State has a subsidiary corporation which is a corporation of the other Contracting State or which is engaged in trade or business in such other Contracting State, such subsidiary corporation shall not, merely because of that fact, be deemed to be a permanent establishment
- of its parent corporation.
  (j) The term "competent authority" or "competent authorities" means, in the case of the United States, the Commissioner of Internal Revenue or his duly authorized representative; in the case of the Netherlands, the Directeur-Generaal der Belastingen or his duly authorized representa-tive; and, in the case of any part or territory to which provisions of the present Convention are extended under Article XXVII, the competent authority for the administration in such part or territory of the taxes to which such provisions apply.
- (2) In the application of the provisions of the present Convention by either of the Contracting States, any term which is not defined in the present Convention shall, unless the context otherwise requires, have the meaning which that term has under the laws of such Contracting State relating to the taxes which are the subject of present Convention.

### ARTICLE V

Income of whatever nature derived from real property and interest from mortgages secured by real property shall be taxable only in the Contracting State in which the real property is situated.

### ARTICLE VII

(1) The rate of United States tax on dividents derived from a United States corpora-

tion by a resident or corporation of the Netherlands not engaged in trade or bustness in the United States through a permanent establishment shall not exceed 15 percent: Provided, That such rate of tak shall not exceed 5 percent if such Netherlands corporation controls, directly or indirectly, at least 95 percent of the entire voting power in the corporation paying the divi-dend, and not more than 25 percent of the gross income of such paying corporation is derived from interest and dividends, other than interest and dividends from its own subsidiary corporation. Such reduction of the rate to 5 percent shall not apply if the relationship of the two corporations has been arranged or is maintained primarily with the intention of securing such reduced rate.

(2) Dividends derived from sources within the Netherlands by a resident or corporation of the United States not engaged in trade or business in the Netherlands through a permanent establishment shall be exempt

from Netherlands tax.

(3) Either of the Contracting States may terminate this Article, by giving written notice of termination to the other Contracting State through diplomatic channels, on or before the thirtieth day of June in any year after the first year for which the present Convention becomes effective. In such event this Article shall cease to be effective on and after the first day of January in the year next following that in which such notice is

### ARTICLE VIII

(1) Interest (on bonds, securities, notes, debentures, or on any other form of indebtedness), other than interest referred to in Article V of the present Convention, derived from sources within the United States by a resident or corporation of the Netherlands not engaged in trade or business in the United States through a permanent establishment, shall be exempt from United States tax: but such exemption shall not apply to such interest paid by a United States corporation to a Netherlands corporation controlling, directly or indirectly, more than 50 percent of the entire voting power in the paying corporation.

### ARTICLE IX

Royalties for the right to use copyrights, patents, designs, secret processes and formu-lae, trade marks, and other analogous property, and royalties, including rentals, in respect of motion picture films or for the uso of industrial, commercial or scientific equipment, derived from sources within one of the Contracting States by a resident or corporation of the other Contracting State not engaged in trade or business in the former State through a permanent establishment, shall be exempt from tax imposed by the former State.

### ARTICLE XII

Dividends and interest paid by a Notherlands corporation shall be exempt from United States tax except where the recipient is a citizen, resident, or corporation of the United States.

### ARTICLE XV .

- (2) Private pensions and life annuities derived from within one of the Contracting States and paid to individuals in the other Contracting State shall be exempt from tax-
- ation in the former State.

  (3) The term "pensions" as used in this Article means periodic payments made in consideration for services rendered or by way of compensation for injuries received.
  (4) The term "life annuities" as used in
- this Article means a stated sum payable

periodically at stated times during life, or during a specified number of years, under an obligation to make the payments in return for adequate and full consideration in money or money's worth.

ARTICLE XXI

The competent authorities of the Contracting States shall exchange such information (being information which such authorities have in proper order at their disposal) as is necessary for carrying out the provisions of the present convention or for the prevention of fraud or the administration of statutory provisions against legal avoidance in relation to the taxes which are the subject of the present Convention. Any information so exchanged shall be treated as secret and shall not be disclosed to any person other than those concerned with the assessment and collection of the taxes which are the subject of the present Convention. No information as aforesaid shall be exchanged which would disclose any trade, business, industrial or

### ARTICLE XXII

professional secret or trade process.

(1) The Contracting States undertake to lend assistance and support to each other in the collection of the taxes which are the subject of the present Convention, together with interest, costs, and additions to the taxes and fines not being of a penal character.

(2) In the case of applications for enforcement of taxes, revenue claims of each of the Contracting States which have been finally determined may be accepted for en-forcement by the other Contracting State and collected in that State in accordance with the laws applicable to the enforcement and collection of its own taxes. The State to which application is made shall not be required to enforce executory measures for which there is no provision in the law of the State making the application.

(3) Any application shall be accompanied by documents establishing that under the laws of the State making the application the taxes have been finally determined.

(4) The assistance provided for in this Article shall not be accorded with respect to the citizens, corporations, or other entities of the State to which application is made, except as is necessary to insure that the exemption or reduced rate of tax granted under the convention to such citizens, corporations or other entities shall not be enjoyed by persons not entitled to such benefits.

### ARTICLE XXIII

- (1) In no case shall the provisions of Article XXI and XXII be construed so as to impose upon either of the Contracting States the obligation.
- (a) To carry out administrative measures at variance with the regulations and practice of either Contracting State, or
- (b) To supply particulars which are not procurable under its own legislation or that of the State making application.
- (2) The State to which application is made for information or assistance shall comply as soon as possible with the request addressed to it. Nevertheless, such State may refuse to comply with the request for reasons of public policy or if compliance would involve violation of a trade, business, industrial or professional secret or trade process. In such case it shall inform, as soon as possible, the State making the application.

### ARTICLE XXV

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(1) The provisions of the present Convention shall not be construed to restrict in any manner any exemption, deduction, credit or other allowance accorded by the laws of one of the Contracting States in the determination of the tax imposed by such State.

(2) Should any difficulty or doubt arise as to the interpretation or application of the present Convention, the competent authorities of the Contracting States shall undertake to settle the question by mutual agreement.

(3) The citizens or subjects of one of the Contracting States shall not, while resident in the other Contracting State, be subjected therein to other or more burdencome taxes than are the citizens or subjects of such other Contracting State residing in its terri-tory. The term "citizens" or "subjects" as used in this Article includes all legal persons, partnerships and associations deriving their status from, or created or organized under the laws in force in, the respective Contracting States. In this Article the word "taxes" means taxes of every kind or description whether national, federal, state, provincial or municipal.

#### ARTICLE XXVI

(1) The authorities of each of the Contracting States, in accordance with the practices of that State, may preceribe regulations necessary to carry out the provisions of the present Convention.

(2) With respect to the provisions of the present Convention relating to exchange of information and mutual assistance in the collection of taxes, the competent authorities may, by common agreement, prescribe rules concerning matters of procedure, forms of application and replies thereto, conversion of currency, disposition of amounts collected, minimum amounts subject collection, and related matters.

(1) Either of the Contracting States may, at the time of exchange of instruments of ratification or thereafter while the precent Convention continues in force, by a written notification of extension given to the other Contracting State through diplomatic channels, declare the desire of the government of any overseas part of the Kingdom (in the case of the Netherlands) or overceas terri-tory (in the case of the United States), which imposes taxes substantially similar in character to those which are the subject of the present Convention, that the operation of the present Convention, either in whole or as to such provisions thereof as may be deemed to have special application, shall extend to such part or territory.

(2) In the event that a notification is given by one of the Contracting States in accordance with paragraph (1) of this Article, the present Convention, or such provisions thereof as may be specified in the notification, shall apply to any part or terri-tory named in such notification on and after the first day of January [immediately preceding] the date of a written communication through diplomatic channels addressed to such Contracting State by the other Contracting State, after such action by the latter State as may be necessary in accordance with its own procedures, stating that such notification is accepted in respect of such part or territory. In the absence of such acceptance, none of the provisions of the present Convention shall apply to such part or territory.

(3) At any time after the expiration of one year from the effective date of an extension made by virtue of paragraphs (1) and (2) of this Article, either of the Contracting States may, by a written notice of termina-tion given to the other Contracting State through diplomatic channels, terminate the application of the present Convention to any part or territory to which the Convention, or any of its provisions, has been extended. In that case, the present Convention, or the provisions thereof specified in the notice of termination, shall cease to be applicable to the part or territory named in such notice of termination on and after the first day of January following the expiration of a period of six months after the date of such notice; provided, however, that this shall

not affect the continued application of the Convention, or any of the provisions thereof, to the United States, to the Netherlands, or to any part or territory (not named in the notice of termination) to which the Convention, or such provision thereof, applies.

(4) For the application of the present Convention in relation to any part or terri-tory to which it is extended by notification given by the United States or the Netherlands, references to "the United States" or to "the Netherlands" or to one or the other Contracting State, as the case may be, shall be conctrued to refer to such part or territory.

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(b) Definitions-(1) In general. Any term defined in the convention or this subpart shall have the meaning so assigned to it; any term not so defined shall, unless the context otherwise requires, have the meaning which such term has under the internal revenue laws of the United States.

(2) Antilles. As used in this subpart, the term "Antilles" means the Netherlands Antilles which, when used in a geographical sense, includes only the following islands off the coast of Venezuela: Aruba, Bonaire, Curacao, Saba, St. Eustalius, and St. Martin (Nether-lands part) The term does not include Dutch Guiana (Surinam)

§ 505.202 Dividends—(a) Paid by Antilles corporation. Dividends paid on or after January 1, 1955, by an Antilles corporation are exempt from United States tax under the provisions of Article XII of the convention if the recipient is not a citizen, resident, or corporation of the United States. Dividends so paid are not subject to the withholding of United States tax at source.

(b) Derived from domestic corporation-(1) Rate of 15 percent. The rate of United States tax upon dividends (other than dividends falling within the scope of paragraph (c) (1) of this section) derived from a domestic corporation on or after January 1, 1955, by a nonresident alien individual who is a resident of the Antilles, or by an Antilles corporation, shall not exceed 15 percent under the provisions of Article VII of the convention if such alien or corporation at no time during the taxable year in which such dividends are derived has engaged in trade or business within the United States through a permanent establishment situated therein.

(2) Personal services. If a nonresident alien individual who is a resident of the Antilles performs personal services within the United States during the taxable year, but has at no time during such year a permanent establishment m the United States, he is entitled to the reduced rate of tax prescribed by subparagraph (1) of this paragraph, even though under the provisions of section 871 (c) of the Internal Revenue Code of 1954 he has engaged in trade or business within the United States during such year by reason of his having performed personal services therein.

(c) Derived from a domestic subsidiary—(1) Rate of 5 percent. Under the proviso of Article VII (1) of the convention, dividends derived from a domestic corporation on or after January 1. 1955, by an Antilles corporation which controls, directly or indirectly, at the time the dividend is paid 95 percent or more of the entire voting power in the corporation paying the dividend are subject to United States tax at a rate not in excess of 5 percent if (i) not more than 25 percent of the gross income of the paying corporation for the threeyear period immediately preceding the taxable year in which the dividend is paid consists of dividends and interest (other than dividends and interest received by such paying corporation from its own subsidiary corporations, if any) (ii) the relationship between the paying corporation and the Antilles corporation has not been arranged or maintained primarily with the intention of securing the reduced rate of 5 percent, and (iii) the Antilles corporation at no time during the taxable year in which such dividends are derived has engaged in trade or business within the United States through a permanent establishment situated therein.

(2) Information to be filed with Commissioner Any domestic corporation which claims or contemplates claiming that dividends paid or to be paid by it are subject to a rate not in excess of 5 percent shall file the following information with the Commissioner of Internal Revenue as soon as practicable: (i) The date and place of its organization; (ii) the number of outstanding shares of stock of the domestic corporation having voting power and the voting power thereof: (iii) the person or persons beneficially owning such stock of the domestic corporation and their relationship to the Antilles corporation; (iv) the amounts by years (for the three-year period immediately preceding the taxable year in which the dividend is paid) of the gross income of the domestic corporation, of the interest and dividends included in such gross income, and of the interest and dividends received by the domestic corporation from its own subsidiary corporations, if any and (v) the relationship between the domestic.corporation and the Antilles corporation deriving the dividend.

(3) Notification by Commissioner As soon as practicable after such information is filed, the Commissioner will determine whether the dividends concerned fall within the scope of the proviso of Article VII (1) of the convention and will notify the domestic corporation of his determination. If the dividends fall within the scope of the proviso, this notification may also authorize the release, pursuant to § 505.208 (a) (2) of excess tax withheld from the dividends concerned.

(d) Effect of address in the Antilles. For the purpose of paragraph (e) (1) of this section, every nonresident alien (including a nonresident alien individual, fiduciary, and partnership) whose address is in the Antilles shall be deemed by United States withholding agents to be a nonresident alien individual who is a resident of the Antilles not engaged in trade or business within the United States through a permanent establishment situated therein; and every foreign corporation whose address is in the Antilles shall be deemed by such, withholding agents to be an Antilles corporation not engaged in trade or business within

the United States through a permanent establishment situated therein.

(e) Withholding of United States tax from dividends-(1) Rate of 15 percent. Withholding at source, as required under the internal revenue laws, in the case of dividends (other than dividends falling within the scope of subparagraph (2) of this paragraph) derived from a domestic corporation by nonresident aliens (including a nonresident alien individual, fiduciary, and partnership) and by foreign corporations, having addresses in the Antilles, shall be at the rate of 15 percent in every case except that in which, prior to the date of payment of such dividends, the Commissioner of Internal Revenue has notified the withholding agent that the reduced rate of withholding shall not apply. This provision is based upon the assumption that the payee of the dividend is the actual owner of the capital stock from which the dividend is derived. As to action by a recipient who is not the owner of the dividend, see § 505.203.

(2) Rate of 5 percent. If, in accordance with paragraph (c) (3) of this section, the Commissioner of Internal Revenue has notified the domestic corporation that the dividends fall within the scope of the proviso of Article VII (1) of the convention, the reduced withholding rate of 5 percent, to the extent withholding of United States tax is required, shall apply to any dividends subsequently paid by such corporation and derived by the Antilles corporation, unless the stock ownership of the domestic corporation, or the character of its income, materially changes; or unless the Commissioner determines that the relationship between the two corporations concerned is being maintained primarily with the intention of securing the reduced rate of tax. In such instance, if such change in stock ownership or character of income occurs, the domestic corporation shall promptly notify the Commissioner of the then existing facts with respect thereto. The continued application of the rate not in excess of 5 percent is also dependent upon the continued fulfillment of paragraph (c) (1) (iii) of this section.

(3) Evidence of tax withheld. The rate at which United States tax has been withheld from any dividend paid at any time after the expiration of the thirtieth day after the date on which this subpart is published in the Federal Register to any person whose address is in the Antilles at the time the dividend is paid shall be shown either in writing or by appropriate stamp on the check, draft, or other evidence of payment, or on an accompanying statement.

§ 505.203 Dividends received by addressee not actual owner—(a) Additional tax to be withheld—(1) Nominee or representative. The recipient in the Antilles of any dividend from which United States tax at the reduced rate of 15 percent has been withheld at source pursuant to § 505.202 (e) (1) who is a nominee or representative through whom the dividend is received by a person other than one described in § 505.202 (b) as being entitled to the reduced rate, shall withhold an additional amount of United

States tax equivalent to the United States tax which would have been withheld if the convention had not been in effect (30 percent as of the date of approval of this subpart) minus the 15 percent which has been withheld at the source.

(2) Fiduciary or partnership. A flduciary or a partnership with an address in the Antilles which receives, otherwise than as a nominee or representative, a dividend from which United States tax at the reduced rate of 15 percent has been withheld at source pursuant to § 505.202 (e) (1) shall withhold an additional amount of United States tax from the portion of the dividend included in the gross income from sources within the United States of any beneficiary or partner, as the case may be, who is not entitled to the reduced rate of tax in accordance with § 505.202 (b) The amount of the additional tax is to be calculated in the same manner as under subparagraph (1) of this paragraph,

(3) Released amounts of tax. If any amount of United States tax is released pursuant to § 505,208 (a) (1) by the withholding agent in the United States with respect to a dividend paid to such a person (nominee, representative, fiduciary, or partnership) with an address in the Antilles, the latter shall withhold from such released amount any additional amount of United States tax. otherwise required to be withheld from the dividend by the provisions of subparagraphs (1) and (2) of this paragraph, in the same manner as if at the time of payment of the dividend United States tax at the rate of only 15 percent had been withheld at source therefrom.

(b) Returns filed by Antilles with-holding agents. The amounts withheld pursuant to paragraph (a) of this section by any withholding agent in the Antilles shall be deposited, without converting the amounts into United States dollars, with the Administrateur van Financien of the Netherlands Antilles on or before the 15th day after the close of the quarter of the calendar year in which the withholding in the Antilles occurs. The withholding agent making the deposit shall render therewith such appropriate Antilles form as may be prescribed by the Administrateur van Financien. The amounts so deposited should be remitted by the Administrateur van Financien by draft in United States dollars to the District Director of Interal Revenue, Baltimore 2, Maryland, U.S. A., on or before the end of the calendar month in which the deposit is made, and should be accompanied by such Antilles form as may be required to be rendered by the withholding agent in the Antilles in connection with the deposit.

§ 505.204 Interest—(a) Paid by Antilles corporation. Interest paid on or after January 1, 1955, by an Antilles corporation is exempt from United States tax under the provisions of Article XII of the convention if the recipient is not a citizen, resident, or corporation of the United States. Interest so paid is not subject to the withholding of United States tax at source.

(b) Received from domestic payers. Interest on bonds, securities, notes,

debentures, or on any other form of mdebtedness, which is paid by a person other than an Antilles corporation and which is derived from sources within the United States on or after January 1, 1955, by a nonresident alien individual who is a resident of the Antilles, or by an Antilles corporation, is exempt from United States tax under the provisions of Article VIII (1) of the convention if the alien or corporation at no time during the taxable year in which the interest is derived has engaged in trade or business within the United States through a permanent establishment situated therein. paragraph applies to interest on obligations of the United States and instrumentalities thereof. It does not apply to interest from mortgage notes (not including bonds) secured by real property or to the interest falling within the scope of paragraph (c) of this section.

(c) Paud by domestic subsidiary. Under the exception contained in Article VIII (1) of the convention, any interest derived from sources within the United States and paid by a domestic corporation to an Antilles corporation is not exempt from United States tax if the Antilles corporation controls, directly or indirectly, at the time the interest is paid more than 50 percent of the entire voting power of all classes of stock of the domestic corporation. The exemption from United States tax granted by Article VIII (1) of the convention does

not apply in such instance.

(d) Exemption from withholding of United States tax-(1) Coupon bond interest-(i) Form to use. To avoid withholding of United States tax at source in the case of coupon bond interest to which paragraph (b) of this section applies, the nonresident alien who is a resident of the Antilles, or the Antilles corporation, shall for each issue of bonds file Form 1001-NA in duplicate when presenting the interest coupons for payment. This form shall be signed by the owner of the interest, trustee, or agent and shall show the name and address of the obligor, the name and address of the owner of the interest, and the amount of the interest. It shall contain a statement (a) that the owner is a resident of the Antilles, or is an Antilles corporation, (b) that the owner is not engaged in trade or business within the United States through a permanent establishment situated therein, and, in the case of interest paid by a domestic corporation to an Antilles corporation, (c) that the owner does not control, directly or indirectly, more than 50 percent of the entire voting power of all classes of stock of the United States domestic corporation. If there is uncertainty as to the degree of stock ownership, see paragraph (e) of this section.

(ii). Exemption applicable only to owner The exemption from United States tax contemplated by Article VIII (1) of the convention, insofar as it concerns coupon bond interest, is applicable only to the owner of the interest. The person presenting the coupon or on whose behalf it is presented shall, for the purpose of the exemption from tax, be deemed to be the owner of the interest only if he is, at the time the coupon is

presented for payment, the owner of the bond from which the coupon has been detached. If the person presenting the coupon or on whose behalf it is presented is not the owner of the bond, Form 1001, and not Form 1001-NA, shall be executed.

(iii) Disposition of form. The original and duplicate of Form 1001-NA shall be forwarded by the withholding agent to the District Director of Internal Revenue, Audit Division, Alien Returns Section, Baltimore 2, Maryland, with the quarterly return on Form 1012. Form 1001-NA need not be listed on Form 1012.

(2) Interest on noncoupon bonds—(i) Notification by letter To avoid withholding of United States tax at source in the case of noncoupon bond interest to which paragraph (b) of this section applies, the nonresident alien who is a resident of the Antilles, or the Antilles corporation, shall notify the withholding agent by letter in duplicate that the interest is exempt from United States tax under the provisions of Article VIII (1) of the convention. The letter of notification shall be signed by the owner of the interest, trustee, or agent and shall show the name and address of the obligor and the name and address of the owner of the interest. It shall contain a statement (a) that the owner is neither a citizen nor a resident of the United States but is a resident of the Antilles, or, in the case of a corporation, that the owner is an Antilles corporation, (b) that the owner has at no time during the current taxable year engaged in trade or business within the United States through a permanent establishment situated therein, and, in the case of interest paid by a domestic corporation to an Antilles corporation, (c) that the owner does not control, directly or indirectly, more than 50 percent of the entire voting power of all classes of stock of the United States domestic corporation. If there is uncertainty as to the degree of stock ownership, see paragraph (e) of this section.

(ii) Use of letter for release of tax. If the letter is also to be used as authorization for the release, pursuant to § 505,208 (a) (5) and (6), of excess tax withheld from interest, it shall also contain a statement (a) that, at the time when the interest was derived from which the excess tax was withheld, the owner was neither a citizen nor a resident of the United States but was a resident of the Antilles, or, in the case of a corporation, the owner was an Antilles corporation, (b) that the owner at no time during the taxable year in which the interest was derived was engaged in trade or business within the United States through a permanent establishment situated therein, and, in the case of interest paid by a domestic corporation to an Antilles corporation, (c) that the owner did not control, directly or indirectly, at the time when the interest was paid, more than 50 percent of the entire voting power of all classes of stock of the United States domestic corpora-

(iii) Manner of filing letter The letter of notification, which shall constitute authorization for the payment of the ration a copy of the interest without withholding of United ter of notification.

States tax at source, shall be filed with the withholding agent for each successive three-calendar-year period during which the interest is paid. For this purpose, the first period shall commence with the beginning of the calendar year in which the interest is first paid on or after January 1, 1955. Each letter filed with any withholding agent shall be filed not later than 20 days preceding the date of the first payment within each successive period, or, if that is not possible because of special circumstances, as soon as possible after such first payment. Once a letter has been filed in respect of any three-calendar-year period, no ad-ditional letter need be filed in respect thereto unless the Commissioner of Internal Revenue notifies the withholding agent that an additional letter shall be filed by the taxpayer. If, after filing a letter of notification, the taxpayer ceases to be eligible for the exemption from United States tax granted by Article VIII (1) of the convention, he shall promptly notify the withholding agent by letter in duplicate. When any change occurs in the ownership of the interest as recorded on the books of the payer, the exemption from withholding of United States tax shall no longer apply unless the new owner of record is entitled to and does properly file a letter of notification with the withholding agent.

(iv) Disposition of letter. Each letter of notification, or the duplicate thereof, shall be immediately forwarded by the withholding agent to the District Director of Internal Revenue, Audit Division, Allen Returns Section, Baltimore 2,

Maryland.

(e) Interest paid by domestic subsidiary where degree of stock ownership is uncertain—(1) Request for ruling in case of anticipated payments. If an Antilles corporation anticipates the receipt of interest from a domestic corporation and the relationship existing between the Antilles corporation and the domestic corporation is such as to render uncertain whether, by reason of the exception contained in Article VIII (1) of the convention, the exemption will apply, the Antilles corporation shall not file Form 1001-NA or the letter of notification prescribed by paragraph (d) of this section unless it has, prior to such filing, applied for and received from the Commissioner of Internal Revenue, Washington 25, D. C., a determination that it does not control, directly or indirectly, more than 50 percent of the entire voting power in the paying corporation. The application to the Commissioner shall contain a full statement of all the facts pertinent to a determination of the question.

(2) Notification of taxpayer As soon as practicable after the application has been filed, the Commissioner of Internal Revenue will determine whether the Antilles corporation has such control of the domestic corporation as to render the exemption granted by Article VIII (1) of the convention inapplicable to interest paid by the domestic corporation to the Antilles corporation and shall notify the Antilles corporation of his determination. The Antilles corporation shall forthwith file with the domestic corporation a copy of the Commissioner's let-

(3) Period during which determination is effective. A determination of the Commissioner that the Antilles corporation does not have such control of the domestic corporation as to render the exemption granted by Article VIII (1) of the convention mapplicable will apply until such time as the stock ownership of the domestic corporation has changed to the extent that interest to be received from the domestic corporation by the Antilles corporation is no longer exempt from United States tax under that article. If such a change in stock ownership occurs, the Antilles corporation shall promptly notify both the Commissioner of Internal Revenue and the domestic corporation.

(4) Exemption from withholding of United States tax. If the Commissioner's determination is that the Antilles corporation does not control, directly or indirectly, more than 50 percent of the entire voting power of all classes of stock of the domestic corporation, the Antilles corporation may thereafter avoid withholding of tax at the source with respect to subsequent payments of interest by complying with the provisions of paragraph (d) of this section, that is, by submitting Form 1001-NA in the case of coupon bond interest, or the letter of notification in the case of interest on noncoupon bonds.

(5) Prior payments. If an Antilles corporation has received on or after January 1, 1955, interest from a domestic corporation and the relationship existing between the Antilles corporation and the domestic corporation was at the time the interest was paid such as to render uncertain whether, by reason of the exception contained in Article VIII (1) of the convention, the interest was exempt from United States tax, the Antilles corporation shall apply to the Commissioner of Internal Revenue for a determination as to the degree of control at the time the interest was paid. If the Commissioner's determination is that at such time the degree of control was such as to permit the application of the exemption granted by Article VIII (1) of the convention, his letter of notification may, subject to the provisions of § 505.208 (a) (5) authorize the release of excess tax withheld from the exempt

§ 505.205 Patent and copyright royalties-(a) Exemption from tax. Royalties for the right to use copyrights, patents, designs, secret processes and formulae, trade marks, and other analogous property, and royalties and rentals in respect of motion picture films or for the use of industrial, commercial, or scientific equipment, which are derived from sources within the United States on or after-January 1. 1955, by a nonresident alien individual who is a resident of the Antilles, or by an Antilles corporation, are exempt from United States tax under the provisions of Article IX of the convention if such alien or corporation at no time during the taxable year in which such income is derived has engaged in trade or business within the United States through a permanent establishment situated therein.

(b) Exemption from withholding of United States tax—(1) Notification by letter To avoid withholding of United States tax at source in the case of the items of income to which this section applies, the nonresident alien who is a resident of the Antilles, or the Antilles corporation, shall notify the withholding agent by letter in duplicate that the income is exempt from United States tax under the provisions of Article IX of the convention.

(2) Manner of filing letter The provisions of § 505.204 (d) (2) (other than those pertaining to the degree of control of voting power) relating to the execution, filing, effective period, and disposition of the letter of notification prescribed therein, including its use for the release of excess tax withheld, are equally applicable with respect to the income falling within the scope of this section.

§ 505.206 Private pensions and life annuities—(a) Exemption from tax. Private pensions and life annuities, as defined in paragraph (c) of this section, derived from sources within the United States on or after January 1, 1955, and paid to a nonresident alien individual who is a resident of the Antilles are exempt from United States tax under the provisions of Article XV (2). of the convention.

(b) Exemption from withholding of United States tax-(1) Notification by To avoid withholding of United States tax at source in the case of the items of income to which this section applies, the nonresident alien individual who is a resident of the Antilles shall notify the withholding agent by letter in duplicate that the income is exempt from United States tax under the provisions of Article XV (2) of the convention. The letter of notification shall be signed by the owner of the income, shall show the name and address of both the payer and the owner of the income, and shall contain a statement that the owner, an individual, is neither a citizen nor a resident of the United States but is a resident of the Antilles.

(2) Use of letter for release of tax. If the letter is also to be used as authorization for the release, pursuant to § 505.208 (a) (6) of excess tax withheld from such items of income, it shall also contain a statement that the owner was, at the time when the income was derived from which the excess tax was withheld, neither a citizen nor a resident of the United States but was a resident of the Antilles.

(3) Manner of filing letter The letter of notification shall constitute authorization for the payment of such items of income without withholding of United States tax at source unless the Commissioner of Internal Revenue subsequently notifies the withholding agent that the tax shall be withheld with respect to payments of such items of income made after receipt of such notice. If, after filing a letter of notification, the owner of the income ceases to be eligible for the exemption from United States tax granted by the convention in respect to such income, he shall promptly notify the withholding agent by letter in duplicate.

When any change occurs in the ownership of the income as recorded on the books of the payer, the exemption from withholding of United States tax shall no longer apply unless the new owner of record is entitled to and does properly file a letter of notification with the withholding agent.

(4) Disposition of letter Each letter of notification, or the duplicate thereof, shall be immediately forwarded by the withholding agent to the District Director of Internal Revenue, Audit Division, Alien Returns Section, Baltimore 2, Maryland.

(c) Definitions. As used in this section, the term "pensions" means periodic payments made in consideration for services rendered or by way of compensation for injuries received, and the term "life annuities" means a stated sum payable periodically at stated times during life, or during a specified number of years, under an obligation to make the payments in return for adequate and full consideration in money or money's worth. Neither term includes retired pay or pensions paid by the United States or by any State or Territory of the United States.

§ 505.207 Beneficiaries of a domestic estate or trust—(a) Entitled to benefits of convention. If he otherwise satisfies the requirements of the respective articles concerned, a nonresident alien individual who is a resident of the Antilles and who is a beneficiary of a domestic estate or trust shall be entitled to the exemption from, or reduction in the rate of, United States tax granted by Articles VII, VIII, IX, and XII of the convention with respect to dividends, interest, and patent royalties and other like amounts, to the extent that (1) any amount paid, credited, or required to be distributed by such estate or trust to such beneficiary is deemed to consist of such items, and (2) such items would, without regard to the convention, be includible in his gross

(b) Withholding of United States tax. In order to be entitled in such instances to the exemption from, or reduction in rate of, withholding of United States tax the beneficiary must otherwise satisfy such requirements and shall, where applicable, execute and submit to the fiduciary of the estate or trust in the United States the appropriate letter of notification prescribed in §§ 505.204 (d) (2) and 505.205 (b)

(c) Amounts otherwise includible in gross income of beneficiary. For the determination of amounts which, without regard to the convention, are includible in the gross income of the beneficiary, see subchapter J of chapter 1 of the Internal Revenue Code of 1954, and the regulations thereunder.

§ 505.208 Release of excess tax withheld at source—(a) Amounts to be released—(1) Dividends divided from domestic corporation. If United States tax has been withheld at the statutory rate on or after January 1, 1955, from dividends described in § 505.202 (b) and derived from a domestic corporation by a nonresident alien including a nonresident alien individual, fiduciary, and partnership) or by a foreign corporation,

whose address at the time of payment was in the Antilles, the withholding agent shall release and pay over to the person from whom the tax was withheld an amount which is equal to the difference between the tax so withheld and the tax required to be withheld pursuant to § 505.202 (e) (1)

(2) Dividends derived from-a domestic subsidiary. If United States tax has been withheld at the statutory rate on or after January 1, 1955, from dividends which fall within the scope of the proviso of Article VII (1) of the convention. the withholding agent shall, if so authorized in accordance with § 505.202 (c) (3). release and pay over to the corporation from which the tax was withheld an amount which is equal to the difference between the tax so withheld and the tax required to be withheld pursuant to § 505.202 (e) (2)

(3) Dividends and interest paid by Antilles corporation. If United States tax has been withheld at the statutory rate on or after January 1, 1955, from dividends and interest paid by an Antilles corporation to a recipient other than a citizen, resident, or corporation of the United States, the withholding agent shall release and pay over to the person from whom the tax was withheld an amount which is equal to the tax so withheld.

(4) Coupon bond interest—(i) Substitute form. In the case of every taxpayer who furnishes to the withholding agent Form 1001-NA clearly marked "Substitute" and executed in accordance with § 505.204 (d) (1) (i) where United States tax has been withheld at the statutory rate on or after January 1, 1955, from coupon bond interest, the with-holding agent shall release (except as provided in subparagraphs (3) and (5) of this paragraph) and pay over to the person from whom the tax was withheld an amount which is equal to the tax so withheld, if the taxpayer also attaches to such form a letter in duplicate, signed by the owner, trustee, or agent and containing the following:

(a) The name and address of the obligor:

(b) The name and address of the owner of the interest from which the excess tax was withheld;

(c) A statement that, at the time when the interest was derived from which the excess tax was withheld, the owner was neither a citizen nor a resident of the United States but was a resident of the Antilles, or, in the case of a corporation, the owner was an Antilles corporation

·(d) A statement that the owner at no time during the taxable year in which the interest was derived was engaged in trade or business within the United States through a permanent establishment situated therein; and

(e) In the case of interest paid by a domestic corporation to an Antilles corporation, a statement that the owner did not control, directly or indirectly, at the time when the interest was paid, more than 50 percent of the entire voting power of all classes of stock of the United States domestic corporation.

One such substitute form shall be filed in duplicate with respect to each issue of bonds and will serve with respect to that issue to replace all Forms 1001 previously filed by the taxpayer in the calendar year in which the excess tax was withheld and with respect to which such excess is released.

(ii) Disposition of form. The original and duplicate of substitute Form 1001-NA (and letter) shall be forwarded by the withholding agent to the District Director of Internal Revenue, Audit Division, Alien Returns Section, Baltimore 2, Maryland, with the quarterly return on Form 1012. Substitute Form 1001-NA need not be listed on Form 1012.

(5) Interest paid where degree of stock ownership is determined. United States tax has been withheld at the statutory rate on or after January 1, 1955, from interest paid by a domestic corporation to an Antilles corporation, and if the relationship existing between the Antilles corporation and the domestic corporation was, at the time the interest was paid, such as to render uncertain whether, by reason of the exception contained in Article VIII (1) of the convention, the interest was exempt from United States tax, the withholding agent shall release and pay over to the Antilles corporation an amount which is equal to the tax so withheld, provided that the Antilles corporation (i) furnishes to the domestic corporation a copy of the Commissioner's authorization of release prescribed in § 505.204 (e) (5) and (ii) files the letter of notification prescribed in § 505.204 (d) (2) (ii), or the substitute Form 1001-NA prescribed in subparagraph (4) of this paragraph, whichever is applicable.

(6) Interest on noncoupon bonds, royalties, private pensions, and life annuities. If a taxpayer furnishes to the withholding agent the authorization of release prescribed in §§ 505.204 (d) (2) (ii), 505.205 (b) (2), or 505.206 (b) (2) and United States tax has been withheld at the statutory rate on or after January 1, 1955, from the interest, copyright royalties or other like amounts, private pensions, or life annuities in respect of which such authorization is prescribed, the withholding agent shall release (except as provided in subparagraph (5) of this paragraph) and pay over to the person from whom the tax was withheld an amount which is equal to the tax so withheld.

(b) Amounts not to be released. The provisions of this section do not apply to excess tax withheld at source which has been paid by the withholding agent to the district director of internal revenue.

(c) Statutory rate. As used in this section, the term "statutory rate" means the rate prescribed by chapter 3 of the Internal Revenue Code of 1954 and the regulations thereunder, as though the convention had not come into effect.

§ 505.209 Information to be furnished in ordinary course—(a) Documents to the Antilles. In compliance with the provisions of Article XXI of the convention, the Commissioner of Internal Revenue will transmit to the Administrateur van Financien of the Netherlands Antilles, as soon as practicable after the close of the calendar year 1955 and of each subsequent calendar year during which the convention is in effect, the following information relating to such preceding calendar year:

(1) The duplicate copy of each available Form 1042 Supplement filed pursuant to paragraph (b) of this section;

and

(2) The duplicate copy of each available ownership certificate, Form 1001–NA, filed pursuant to § 505.204 (d) (1). and substitute Form 1001-NA, filed pursuant to § 505.208 (a) (4) and (5) in connection with coupon bond interest.

(b) Information return by withholding agent—(1) Form to use. To facilitate compliance with Article XXI of the convention, every United States withholding agent shall make and file in duplicate with the District Director of Internal Revenue, Baltimore 2, Maryland, an information return on Form 1042 Supplement, with respect to persons having addresses in the Antilles, which shall be filed for the calendar year 1956 and subsequent calendar years. This return shall be filed simultaneously with Form 1042.

(2) Information to be given. There shall be reported on such Form 1042 Supplement all items of fixed or determinable annual or periodical income (and amounts described in section 402 (a) (2), section 631 (b) and (c), and section 1235 of the Internal Revenue Code of 1954, which are considered to be gains from the sale or exchange of capital assets) derived from sources within the United States and paid to nonresident aliens (including nonresident alien individuals, fiduciaries, and partner-ships) and to nonresident foreign corporations, whose addresses at the time of payment were in the Antilles, including such items of income upon which, in accordance with this subpart, no withholding of United States tax is required; except that any of such items which constitutes interest in respect of which Form 1001-NA or substitute Form 1001-NA has been filed in duplicate with the withholding agent is not required to be reported on such Form 1042 Supplement.

§ 505.210 Effective date—(a) Payments on or after January 1, 1955. In order to give the convention effective application at the earliest practicable date, the exemptions from, and reductions in the rate of, withholding of United States tax at source granted by this subpart are hereby made effective beginning January 1, 1955, contingent upon compliance with the applicable provisions hereof.

(b) Taxable years beginning in 1954 and ending in 1955. If, in the case of a taxable year beginning in 1954 and ending in 1955, a taxpayer is not engaged in trade or business in the United States through a permanent establishment at any time during that part of the taxable year which follows December 31, 1954, then he shall, for purposes of this subpart be deemed not to have been engaged in trade or business within the

United States at any time during the feited pay by reason of absence without taxable year through a permanent leave) time spent in desertion or while establishment situated therein.

Because it is necessary to bring into effect at the earliest practicable date the rules of this Treasury decision respecting release of excess tax withheld, and exemption from, or reduction in the rate of, withholding of tax, it is hereby found that it is impracticable to issue this Treasury decision with notice and public procedure thereon under section 4 (a) of the Administrative Procedure Act, approved June 11, 1946, or subject to the effective date limitation of section 4 (c) of that Act.

[SEAL]

O. GORDON DELK, Acting Commissioner of Internal Revenue.

Approved: December 5, 1955.

H. Chapman Rose,

Acting Secretary of the Treasury.

[F. R. Doc. 55-9905; Filed, Dec. 8, 1955; 8:45 a. m.]

# TITLE 38—PENSIONS, BONUSES, AND VETERANS' RELIEF

### Chapter I—Veterans Administration

PART 3-VETERANS CLAIMS

MISCELLANEOUS AMENDMENTS

- 1. Section 3.1003 is revised to read as follows:
- § 3.1003 Indian Wars. (See also §§ 3.1009 and 3.1021.) All campaigns recognized by the Department of the Army, including those cited in the act of March 4, 1917, as amended by the act of March 3, 1944, between January 1, 1817, and December 31, 1898.
- (Sec. 1, 44 Stat. 1361, as amended; 38 U. S. C. 381)
- 2. The centerhead immediately preceding § 3.1006 is amended to read as follows: "Persons Included in the Acts in Addition to Commissioned Officers and Enlisted Men"
- 3. The centerhead "Persons not Included" immediately preceding § 3.1013 is revoked.
  - 4. The following sections are revoked:
- § 3.1013 Public Law 141,73d Congress, and Public Law 269,74th Congress, and Veterans Regulation 1 (f) (38 U.S.C.ch. 12A) [Revoked.]
  - § 3.1014 Indian Wars. [Revoked.]
- § 3.1015 Civil War; service pension. [Revoked.]
- 5. Section 3.1018 is revised to read as follows:
- § 3.1018 Spanish-American War Boxer Rebellion, or Philippine Insurrection, Public Law 269, 74th Congress, as amended. Service is exclusive of unauthorized leaves of absence and furloughs enumerated in § 3.59, except that leave under G. O. 130, War Department, is included as pensionable service. Time under arrest, in the absence of acquittal or permission to resign without trial and conviction (time for which the soldier or sailor was determined to have for-

leave) time spent in desertion or while undergoing sentence of court martial, should be deducted. Time in a hospital, on sick furlough, or as a prisoner by the enemy is included. Records of the Department of the Army or Navy are conclusive with respect to military or naval service as the basis of a pension claim, unless changed by special act of Congress. Under Public Law 108, 82d Congress, and for periods after September 30, 1951, in computing active service there shall be counted continuous active service which commenced prior to and extended into the applicable period specified in § 3.1000 (b) or which commenced within such applicable period. Fragmentary periods of active service within such applicable period may be added together to meet the statutory requirements as to length of service (sec. 1 (b), Public Law 108, 82d Congress.)

(Sec. 1, 44 Stat. 382, as amended; sec. 1, 46 Stat. 492, as amended, sec. 1, 49 Stat. 614, sec. 1, 65 Stat. 174; 38 U. S. C. 364, 365, 368, 370g)

- 6. Section 3.1021 is revised to read as follows:
- § 3.1021 Indian Wars. For service pension pursuant to the act of March 3, 1927, as amended, service of 30 days ormore or the duration of a campaign cited in the act of March 4, 1917, even though such campaign was of less than 30 days' duration, is required in any military organization whether such person was regularly mustered into the service of the United States or not but whose service was under the authority or by the approval of the United States or any State or Territory in any Indian war or campaign, or in connection with, or in the zone of any active Indian hostilities in any of the States or Territories of the United States from January 1, 1817, to December 31, 1898, inclusive, the determination as to what constitutes the zone of active Indian hostilities to be made by the Administrator of Veterans Affairs. The expression "active Indian hostilities" means actual hostilities, such as necessitated the employment of the military arm of the State, Territory, or the United States in their suppression, and service in a military organization against Indians, without authority or even against orders of its Government, if subsequently approved either tacitly or openly, if pensionable. Service in an organization against Indian or white outlaws is not pensionable, but service against Indians rendered by troops of any of the States that seceded from the Union is included. Where the Department of the Army is unable to locate a record of alleged service, other evidence may be admitted to prove that the requisite service was rendered, but a purported list of members, not filed with the Adjutant General of a State until a date remote from the period of the hostilities may not be accepted as genuine and a sufficient finding that a claimant rendered the required service.
- (Sec. 1, 44 Stat. 1361, as amended; 38 U. S. C. 381)
- 7. Section 3.1023 is revised to read as follows:

- § 3.1023 Special act. A special act of Congress, reciting that a person is considered to have been mustered into the service on a named date and honorably discharged on a subsequently named date, is sufficient regardless of whether the Department of Defense has any record of such service. A special act in specifying actual periods of presumed service, in the absence of a Department of Defense record, is pensionable only at the rate provided therein.
- 8. In § 3.1025, a new paragraph (o) is added and former paragraph (o) is redesignated paragraph (p), so that the added and redesignated material reads as follows:
- § 3.1025 Jurisdiction of the Veterans Claims Division, Veterans Benefits Office, D. C. * * *
- (o) Claims involving service department information classified as "Confidential." These cases will be retained in the Veterans Benefits Office, D. C., for a period of at least 1 year, until the appeal period expires or, where indicated, may be retained for longer periods.
- (p) Any claim not otherwise under the jurisdiction of Veterans Benefits Office, D. C., referred by competent authority for action.
- 9. In § 3.1040, paragraph (b) is amended to read as follows:
- § 3.1040 Types of discharges for service pension (Spanish-American War, Boxer Rebellion, Philippine Insurrection, Civil War and Indian Wars)
- (b) Discharge for disability. Service pension is payable on the basis of Civil War service and on the basis of Spanish-American War service, including the Boxer Rebellion and the Philippine Insurrection (acts of May 1, 1926, and June 2, 1930) if service was less than 90 days: Provided, the veteran was discharged for disability incurred in the service in line of duty.
- 10. In § 3.1041, paragraph (b) is amended to read as follows:
- § 3.1041 Joint resolutions of July 1, 1902, and June 28, 1906. * * *
- (b) Subsequent service must have been faithful. The Joint Resolutions of July 1, 1902, and June 28, 1906, do not apply where the subsequent service was not faithful; e. g., where the veteran deserted in the subsequent service, but was given an honorable discharge therefrom or where the charge of desertion in the subsequent enlistment was removed and an honorable discharge issued subsequent to the Civil War. A record of desertion is prima facie evidence that the entire service of the claimant was not faithful within the meaning of these acts and evidence designed to show that such record was erroneous must be filed in and considered by the department in which the record was made. As a general proposition where a soldier's service was of such character that he is obliged to resort, years subsequent to the close of the war, to an application to the Department of the Army under general remedial statutes in order to complete his record and to secure discharge, that

fact necessarily implies that his entire service was not faithful.

11. In § 3.1042, paragraph (a) is amended to read as follows:

Desertion-(a) The act of § 3.1042 April 26, 1898, as amended May 11, 1908. Section 6 of the act of April 26, 1898, as amended by the act of May 11, 1903, provides that where a soldier deserts, all rights to disability pension are forfeited, whether desertion was in time of peace or war. This act is applicable to all laws renacted by Public Law 269, 74th Congress. This provision is expressly limited to soldiers and has no application to sailors, marines, or death pensioners. It is immaterial whether the service was terminated by an honorable discharge upon remission of sentence for the desertion after trial and conviction or that the proceedings were set aside for irregularity but desertion from an enlistment entered into subsequent to the service during which the injury was incurred or -subsequent to the war during which the requisite service to convey entitlement to service pension was rendered, is not a bar to pension on the previous service. Conviction and sentence by court martial are not material but forfeiture for periods prior to June 22, 1944, will attach in case of desertion even where the soldier voluntarily surrenders, is restored to duty without a trial, and was thereafter honorably discharged. An act of Congress, removing a charge of desertion, pursuant to which an honorable discharge was issued by the Department of the Army, as of the date of the occurrence previously recorded as desertion, erases all effects of the desertion, and an act of Congress providing that in the administration of the pension laws an individual shall be considered as honorably discharged, but not specifically removing a charge of desertion, will entitle the person to a pension, if otherwise in order, notwithstanding the acts of April 26, 1898, and May 11, 1908, if the legislative history discloses that it was the intent to grant a pension. The act of April 26, 1898, does not apply to pension predicated on service which terminated prior to that date: Provided, That on and after the approval of Public Law 346, 78th Congress, June 22, 1944, where the veteran is restored to duty and subsequently honorably discharged, he may be awarded a pension under the reenacted Spanish-American War laws, if otherwise entitled thereto: Provided fur-That notwithstanding desertion where the veteran is granted an honorable discharge under section 301, Public Law 346, 78th Congress, or under section 207, Public Law 601, 79th Congress, as amended, he may be awarded compensation or pension to which entitlement is otherwise shown, effective as provided in § 3.212 (d)

12. Section 3.1044 is revised to read as follows:

§ 3.1044 Misconduct—(a) Public Law 269, 74th Congress. As to pension under. the service acts renacted by Public Law 269, 74th Congress, there is no bar as to misconduct or vicious habits.

not constitute a bar under the act of March 3, 1944.

(c) Civil War Misconduct of vicious habits do not constitute a bar under the act of June 9, 1930.

(Sec. 1, 44 Stat. 1361, as amended, sec. 1, 46 Stat. 529, sec. 1, 49 Stat. 614; 38 U.S. C. 274, 368, 381)

13. Section 3.1055 Public Law 141,73d Congress is revoked.

14. The centerhead "Evaluation Under the Laws in Force on March 19, 1933, Which Were not Repealed, as to Service Prior to April 21, 1898, and as Reenacted by Public Law 141, 73d Congress, and Public Law 269, 74th Congress," immediately preceding § 3.1061 is revoked.

15. The following sections are revoked:

§ 3.1061 Evaluation of disability. [Revoked.]

§ 3.1062 General Law rates. IRevoked.1

§ 3.1063 Combination. [Revolted.]

§ 3.1064 Aggravation. [Revoked.]

§ 3.1065 Effective dates of increases. [Revoked.]

§ 3.1066 Decreases. [Revoked.]

16. The centerhead "Evaluation of Disabilities" immediately preceding § 3.1068 is revoked.

17. The following sections are revoked:

§ 3.1068 Public Law 269, 74th Congress; definition of disability. IRevoked.]

§ 3.1069 Public Law 269, 74th Congress; ratings; effective dates of increases. [Revoked.]

§ 3.1070 Public Law 269, 74th Congress; reductions. [Revoked.]

§ 3.1071 Act of March 3, 1927, Indian Wars, as amended by Public Law 245, 78th Congress. [Revoked.]

§ 3.1073 Act of June 9, 1930, Civil War. [Revoked.]

18. Section 3.1080 is revised to read as

§ 3.1080 Pension laws in force on March 19, 1933, and as reenacted by Public Law 269, 74th Congress. For periods from October 1, 1951, the effective date of payments under Public Law 108. 82d Congress, the rate for regular aid and attendance, helplessness, or blindness will be effective from the date of claim or the date the evidence shows entitlement, whichever is the later.

(Sec. 1, 49 Stat. 614, sec. 3, 65 Stat. 174; 38 U.S. C. 368, 3701)

19. Section 3.1081 Frequent and periodical aid and attendance is revoked.

20. The centerhead "Combination of Ratings (See also § 3.155)" immediately preceding § 3.1082 is revoked.

21. Section 3.1082 Peacetime and wartime disabilities is revoked.

22. Section 3.1089 is revised to read as follows:

§ 3.1089 Rates; service prior to April 21, 1898. In claims of veterans with providions of § 3.255.

(b) Indian Wars. Vicious habits do service prior to April 21, 1898, including veterans of the Indian Wars, the compensation to be awarded will be in accordance with the rates provided in Part I or IF, Veterans Regulation No. 1 series, as amended (38 U.S. C. ch. 12A) dependent upon whether the service was wartime or peacetime, and the Schedule for Rating Disabilities, 1933, for periods from March 28, 1934, to July 31, 1948, and/or the Schedule for Rating Disabilities, 1945, for periods on or after August 1, 1948, or in accordance with the rates provided by the act of July 14, 1862, as amended (the General Law) or in accordance with the rates provided by the various service pension acts, as amended, whichever is the greater monetary benefit.

> (R. S. 4602, 4603, as amended, 4605, as amended, 4636, eecs. 1, 4, 43 Stat. 8, 23 amended, 9; 38 U. S. O. 151-154, 701, 704)

> 23. Section 3.1107a Public Law 541, 75th Congress is revoked.

> 24. Section 3.1103 is revised to read as follows:

> § 3.1103 Rates of pension: Spanish-American War, Philippine Insurrection, and/or Boxer Rebellion. Service pension is payable at rates as follows:

Scrvice .	Minimum rate	Regularational attendance, helpharmers or blindness	
70 daya	\$77.73	\$33.04	
90 daya	101.53	122.45	

Note: The foregoing rates are subject to the provisions of § 3.255. Where a veteran is furnished hospital treatment, institutional or domicillary care by the Veterans Administration and is furnished nursing or attendant's cervice, for conditions other than blindness, the award of pension will be the amount authorized under Public Law 103, 82d Congress, as amended, from October 1, 1951, exclusive of any additional amount on account of the need of regular ald and attendance. This reduced rate of pension in such instances will be effective as of the beginning of the maintenance of the disabled veteran by the Veterans Administration. The full rate for regular aid and attendance will be restored, if otherwise in order, upon the termination of the veteran's hespital treatment or domiciliary care or his furlough, trial visit, or temparary leave of absence of 30 days or more. The award will include the full rate for those days when cervice in kind for the regular aid and attendence was not furnished due to the veteran's absence from the institution.

(Sec. 1, 69 Stat. 903, as amended, sec. 2, 65 Stat. 174, 68 Stat. 916; 33 U.S. C. 370h, 739)

25. Section 3.1110 is revised to read as follows:

§ 3.1110 Rates of pension: Indian Wars. Pension is payable at rates as follows:

Minimum rate: 6101.59.

Regular aid and attendance, helpleseness, or blindness: 8135.45.

Nore: The foregoing rates are subject to the provicion that the rate for blindness may be allowed, but that the rate for regular aid and attendance may not be allowed while the veteran is being maintained by the Veterans Administration and to the

(62 Stat. 4, sec. 1, 44 Stat. 1361, as amended, 50 Stat. 788, as amended, Sec. 1, 60 Stat. 908, as amended, Sec. 1, 68 Stat. 916; 38 U. S. C. 374a, 381, 381-1, 739, 750)

26. Section 3.1113 Rates payable for disability incurred in service prior to April 21, 1898 is revoked.

27. Section 3.1115 Act of July 14, 1862, as amended is revoked.

28. The following sections are revoked:

§ 3.1117 Effective date. [Revoked.]

§ 3.1125 Automatic increase. voked.]

§ 3.1127 Attained age. / [Revoked.]

§ 3.1128 Claim required for transfer from General Law rates to service pension rates. [Revoked.]

29. In § 3.1135, the headnote and paragraph (a) are amended to read as follows:

§ 3.1135 Public Law 269, 74th Congress; Indian Wars; Civil War and peacetime prior to April 21, 1898. (a) The act of December 21, 1893, requiring due notice of not less than 30 days of the decision to annul, vacate, modify, or set aside an award of pension on the basis of evidence in file when the original determination was made, was reenacted by Public Law 269, 74th Congress, and is for application to pension payable pursuant thereto, as well as pension payable for service prior to April 21, 1898.

30. Section 3.1140 is revised to read as follows:

Restoration and renewal. Section 4719, Revised Statutes, which is for application to pension payable under the laws reenacted by Public Law 269, 74th Congress, and for service during Indian Wars and peacetime prior to April 21, 1898: Provided, That the pensioner's name should be stricken from the rolls because of the pensioner's failure after-3 years to claim his pension. For restoration there must be filed evidence specifically accounting for the failure to claim the pension, and evidence showing the continuity of the disability on account of which pension was allowed, unless the mjury or disease was of static nature. The reasons for failure to claim for the intervening period must be satisfactorily shown, and it must also be shown that the right to pension had not legally terminated in some of the ways or for some of the causes specified or by necessary implication included in the pension laws as terminating pension. (R. S. 4719, sec. 1, 49 Stat. 614; 38 U. S. C. 53, 368)

(Sec. 5, 43 Stat. 608, as amended, sec. 2, 46 Stat. 1016, sec. 7, 48 Stat. 9; 38 U. S. C. 11a,

This regulation is effective December 9. 1955.

J. C. PALMER. [SEAL] Assistant Deputy Administrator [F. R. Doc. 55-9918; Filed, Dec. 8, 1955; 8:47 a. m.]

PART 17-MEDICAL

ELIGIBILITY FOR HOSPITAL TREATMENT OR DOMICILIARY CARE

1. In § 17.47, paragraphs (c) (2) and (d) (1) (3) and (4) are amended to read as follows:

§ 17.47 Eligibility for hospital treatment or domiciliary care of persons discharged, released, or retired from active military or naval service. * * *

(c) Hospital treatment and domiciliary care. * * *

(2) Domiciliary care for persons who were discharged or released from active military or naval service under other than dishonorable conditions for disability incurred or aggravated in line of duty, or who are in receipt of compensation for service-connected or service-aggravated disability when suffering from a permanent disability or tuberculous or neuropsychiatric ailment and who are incapacitated from earning a living and who have no adequate means of support. An additional requirement for eligibility for domiciliary care is the ability of the veteran to perform all the following:

(i) Perform without assistance daily ablutions, such as brushing teeth; bathing; combing hair; body eliminations.

(ii) Dress himself, with a minimum of assistance.

(iii) Proceed to and return from the dining hall without aid.

(iv) Feed himself.

(v) Secure medical attention on an ambulatory basis or by use of personally propelled wheelchair.

(vi) Have voluntary control over body eliminations or control by use of an ap-

propriate prosthesis.

(vii) Share, by his personal efforts, in some measure, however slight, in the maintenance and operation of the station.

(viii) Make rational and competent decisions as to his desires to remain or leave the station.

(d) Hospital treatment or domiciliary care. (1) Hospital treatment or domiciliary care for persons who served in the active military or naval forces, including those who had active duty as a member of the Women's Army Auxiliary Corps, regardless of length of service, during a period of war as defined in paragraph (a) (1) of this section, who were discharged or released from active duty under other than dishonorable conditions; who swear that they are unable to defray the expense of hospitalization or domiciliary care (including the expense of transportation to and from a Veterans Administration facility), and who are suffering from a disability, disease, or defect which, being susceptible to cure or decided improvement, indicate need for hospital treatment, or which, being essentially chronic in type is producing disablement of such degree and of such probable persistency as will incapacitate from earning a living for a prospective period, and thereby indicates need for domiciliary care. An additional requirement for eligibility for domiciliary care is the ability of the veteran to perform all of the following:

(i) Perform without assistance daily ablutions, such as brushing teeth; bathing; combing hair; body eliminations.
(ii) Dress himself, with a minimum

of assistance.

(iii) Proceed to and return from the dining hall without aid.

(iv) Feed himself.

(v) Secure medical attention on an ambulatory basis or by use of personally propelled wheelchair.

(vi) Have voluntary control over body eliminations or control by use of an ap-

propriate prosthesis.

(vii) Share, by his personal efforts, in some measure, however slight, in the maintenance and operation of the station.

(viii) Make rational and competet decisions as to his desires to remain or leave the station.

Except for applicants presenting emergent conditions, consideration in admissions under this subparagraph may be given to 'the length or character of service.

(3) Hospital treatment or domicilary care for persons who served in the active military or naval forces, regardless of length of service on or after June 27, 1950, and prior to February 1, 1955, who meet the other eligibility requirements of subparagraph (1) of this paragraph.

(4) Hospital treatment or domiciliary care for persons defined in § 17.46 (a) (3) who meet the other eligibility requirements of subparagraph (1) of this paragraph.

2. In § 17.48, paragraphs (b) and (c) (1) are amended to read as follows:

§ 17.48 Definitions applicable in determining eligibility for hospital treatment or domiciliary care. * *

(b) Under § 17.47 (c) (2)

(1) "No adequate means of support". When an applicant is receiving an income of \$125 or more per month from any source, this fact will be considered prima facie evidence that he has adequate means of support, except when he is in fact contributing in whole or part from such income to the support of a wife, child, mother, or father. If the applicant alleges he is contributing to the support of dependents other than these, the alleged circumstances will be submitted to the Manager for decision as to eligibility for admission.

(c) Under § 17.47 (d)
(1) "Any disability, disease, or defect" will comprehend any acute, subacute, or chronic disease (of a general medical, tuberculous or neuropsychiatric type) or any acute, subacute, or chronic surgical condition susceptable of cure or decided improvement by hospital care; or any condition which does not require hospital treatment for an acute or chronic condition but requires domiciliary care. Domiciliary care, as the term implies, is the provision of a home, with such ambulant medical care as is needed. To be entitled to domiciliary care, the applicant must consistently have a disability, disease, or injury which, is essentially chronic in type and is producing disablement of such degree and probable persistency as will incapacitate from earning a living for a prospective period.

(Sec. 5, 43 Stat. 608, as amended, sec. 2, 46 Stat. 1016, sec. 7, 48 Stat. 9; 38 U. S. C. 11a, 426, 707. Interpret or apply secs. 1, 6, 48 Stat. 9, 301, 53 Stat. 652, as amended; 38 U. S. C. 706, 706a)

This regulation is effective December 9, 1955.

[SEAL] J. C. PALMER,
Assistant Deputy Administrator

[F. R. Doc. 55-9917; Filed, Dec. 8, 1955; 8:47 a.m.]

## TITLE 43—PUBLIC LANDS:

Chapter I—Bureau of Land Management, Department of the Interior

Appendix—Public Land Orders
[Public Land Order 678, Correction]
[1900444]

### TAH

WITHDRAWING PUBLIC LANDS FOR USE OF DEPARTMENT OF THE ARMY FOR MILITARY PURPOSES; REVOKING EXECUTIVE ORDER NO. 9053 OF FEB. 6, 1942; CORRECTION

**DECEMBER 5, 1955.** 

The land description in Public Land Order No. 678 of October 24, 1950, appearing as F. R. Doc. 50-9581 in the issue of October 31, 1950, at page 7299, so far as such description refers to lands in Tps. 5 and 6 S., R. 10 W., and T. 6 S., R. 9 W., is hereby amended to read as follows:

Those portions lying west and couthwest of Dugway Proving Ground boundary chown on plat of survey of Tps. 5 and 6 S., Rs. 8, and 10 W., S. L. II., Utah, accepted January 30, 1953, which boundary is more particularly described as beginning at a point on the north boundary of T. 5 S., R. 10 W., from which the standard corner of cess. 31 and 32, T. 4 S., R. 10 W., bears west 5.40 chains, thence S. 1° 29' W., 69.63 chains to AP 1;

S. 4° 18' E., 94.83 chains to AP 2;
S. 5° 21' E., 87.44 chains to AP 3;
S. 63° 27' E., 26.00 chains to AP 4;
S. 17° 15' E., 70.51 chains to AP 5;
S. 55° 37' E., 132.09 chains to AP 6;
S. 56° 22' E., 108.71 chains to AP 7;
S. 24° 31' E., 20,92 chains to AP 8;
S. 28° 31' E., 20,92 chains to AP 8;
S. 28° 65' E., 70.05 chains to AP 10;
S. 41° 32' E., 55.35 chains to AP 11;
N. 89° 15' E., 36.73 chains to AP 12;
S. 25° 40' E., 36.19 chains to AP 12;
S. 25° 40' E., 36.19 chains to AP 13;
N. 66° 24' E., 56.38 chains to AP 14;
S. 38° 48' E., 29.84 chains to AP 16;
S. 38° 48' E., 29.84 chains to AP 16;
S. 38° 20' E., 71.44 chains to AP 16;
S. 36° 24' W., 18.77 chains to AP 19;
S. 1° 41' W., 61.73 chains to AP 20;
N. 65° 19' E., 25.68 chains to AP 20;
N. 65° 59' E., 41.19 chains to AP 22;
N. 85° 57' E., 44.22 chains to AP 23;
S. 58° 52' E., G9.09 chains to AP 24;
S. 26° 06' E., 74.82 chains to AP 26;
S. 88° 42' E., 14.59 chains to AP 26;
S. 88° 42' E., 14.59 chains to AP 26;

S. 88° 42' E., 14.59 chains to closing corner of secs. 31 and 36, T. 6 S., Rs. 8 and 9 W., 12.07 chains south of corner of secs. 25 and 36, T. 6 S., R. 9 W.

The description of the total acreage withdrawn by said order is amended to read 286,000 acres.

DEPUE FALCE,
Acting Director

[F. R. Doc. 55-9903; Filed, Dec. 8, 1935; 8:45 a.m.]

### proposed rule .making

# DEPARTMENT OF AGRICULTURE Agricultural Marketing Service 17 CFR Part 58 1

GRADING, INSPECTION, SAMPLING, GRADE
LABELING AND SUPERVISION OF PACKAGING OF BUTTER, CHEESE AND OTHER
MANUFACTURED OR PROCESSED DAIRY
PRODUCTS

NOTICE OF PROPOSED RULE MAKING

Notice is hereby given that the United States Department of Agriculture is considering the issuance, as hereinafter proposed, of amendments to the regulations governing the grading, inspection, sampling, grade labeling and supervision of packaging butter, cheese and other manufactured or processed dairy products (7 CFR, Part 58) issued pursuant to the authority contained in the Agricultural Marketing Act of 1946 (60 Stat. 1087; 7 U. S. C. 1621 et seq.) The proposed amendments will implement Public Law 272, 84th Congress, 1st session, approved August 9, 1955, amending the aforesaid act, by designating the certificates, memoranda, marks and other identifications and devices for making such marks or identifications, with re-

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spect to inspection, class, grade, quality, or condition, that are official for the purpose of said act. The proposal also makes minor corrections to the amendment of Part 58 published in the Federal Register August 5, 1955 (20 F. R. 5022) and with respect to § 58.45, "Fees for Laboratory Analyses" provides specific fees for additional laboratory tests and for a slight reduction in fees for certain tests.

All persons who desire to submit written data, views or arguments in connection with this amendment should file the same in triplicate with the Chief of the Inspection and Grading Branch, Dairy Division, Agricultural Marketing Service, United States Department of Agriculture, Room 2977, South Building, Washington 25, D. C., not later than 10 days after publication hereof in the Federal Register.

The proposed amendments are as follows:

- 1. Delete the definition of "Official Identification" in § 58.2 (q)
  - 2. Add new § 58.2a to read as follows:

§ 58.2a Designation of official certificates, memoranda, marks, other identifications, and devices for purposes of the

Agricultural Marketing Act. Subsection 203 (h) of the Agricultural Marketing Act of 1926, as amended by Public Law 272, 84th Congress, provides criminal penalties for various specified offenses relating to official certificates, memoranda, marks, or other identifications, and devices for making such marks or identifications, issued or authorized under section 203 of said act, and certain misrepresentations concerning the inspection or grading of agricultural products under said section. For the purposes of said subsection and the provisions in this part, the terms listed below shall have the respective meanings specified:

(a) "Official certificate" means any form of certification, either written or printed, used under this Part to certify with respect to the inspection, class, grade, quality, quantity, or condition of products (including the compliance of products with applicable specifications)

(b) "Official memorandum" means any initial record of findings made by an authorized person in the process of grading, inspecting, or sampling, pursuant to this part, any processing or plant-operation report made by an authorized person in connection with grading, inspecting, or sampling under this part, and any report made by an authorized person of services performed pursuant to this part.

(c) "Official mark" means the grade mark, inspection mark, and any other mark, approved by the Administrator and authorized to be affixed to any product, or affixed to or printed on the packaging material of any product, stating that the product was graded or inspected or both, or indicating the appropriate U. S. grade or condition of the product, or for the purpose of maintaining the identity of products graded or inspected or both under this part, including but not limited to, those set forth in §\$ 58.49 through 58.51.

(d) "Official identification" means any United States (U. S.) standard designation of class, grade, quality, quantity, or condition specified in this part and Parts 20, 23, 24, 25, 37, 39, 40, 43 and 45 of this chapter, or any symbol, stamp, label, or seal indicating that the product has been officially graded or inspected and/or indicating the class, grade, quality, quantity, or condition of the product, approved by the Administrator and authorized to be affixed to any product, or material of any product.

(e) "Official device" means a stamping appliance, branding device, stencil, printed label, or any other mechanically or manually operated tool that is approved by the Administrator for the purpose of applying any official mark or other identification to any product or the packaging material thereof.

3. Correct item 12 of the amendment published August 5, 1955 (20 F. R. 5624) to read as follows: Delete § 58.16 and redesignate § 58.15 as § 58.16. Correct item 26 of the same amendment (20 F. R. 5625) to read as follows: Place the heading "Miscellaneous" prior to § 58.59 mestead of prior to § 58.58 and delete § 58.59.

### 4. Change § 58.16 to read as follows:

§ 58.16 Disposition of samples of graded product. Any sample of graded product may be returned to the applicant at his request and at his expense if such request was made at the time of the application for the grading service. In the event the aforesaid request was not made at the time of application for the grading service, the sample of product may be disposed of to any recognized charitable organization or in any other manner which is approved by the Administrator.

5. Change § 58.45 Fees for laboratory analyses as follows:

(a) Dry milk, dry whey. Change certain items as follows:

Scorched particles	
Moisture	1.75
Fat	
Alkalinity of ash	2.00
Iron	5.50
Copper	5.50

(h) Bacteriological analyses and other specified determinations with respect to individual tests for one factor Add the following:

Iron	\$5.50
Copper	5.50
Protein (Kjeldahl)	3,00
Plant survey "line" samples, based on	
time required to perform such serv-	
ices, per hour	3, 60

6. Change the first paragraph of § 58.58 (a) to read as follows:

§ 58.58 Debarment of service. (a) The following acts or practices and those set forth in § 58.2a, or the causing thereof, may be deemed sufficient cause for the debarment, by the Administrator, of any person, including any agents, officers, subsidiaries, or affiliates of such person from any or all benefits of the act for a specified period after notice and opportunity for hearing has been accorded him; and pending investigation and hearing the Administrator may direct, without hearing, that such person shall be denied the benefits of the act.

- 7. Section 58.58 (a) (4) Wilful violation of the regulations. Change to read as follows:
- (4) Wilful violation of the regulations. Wilful violation of the regulations in this part or the act, or the instructions or specifications issued by the Administrator.

(60 Stat. 1090; 7 U.S. C. 1624)

Issued at Washington, D. C., this 6th day of December 1955.

[SEAL] FRANK E. BLOOD,

Acting Deputy Administrator

Agricultural Marketing Service.

[F. R. Doc. 55-9907; Filed, Dec. 8, 1955; 8:46 a.m.]

### I 7 CFR Part 945 1

TOMATOES GROWN IN FLORIDA

PROPOSED SAFEGUARDS AND EXEMPTION PROCEDURES

Notice is hereby given that the Secretary of Agriculture is considering the ap-

proval of the rules and regulations, hereinafter set forth, which were recommended by the Florida Tomato Committee, established pursuant to Marketing Agreement No. 125 and Order No. 45 (7 CFR Part 945; 20 F. R. 7357) regulating the handling of tomatoes grown in Florida, issued under the Agricultural Marketing Agreement Act of 1937, as amended (48 Stat. 31, as amended; 7 U. S. C. 601 et seq., 68 Stat. 906, 1047)

Consideration will be given to any data, views, or arguments pertaining thereto, which are filed with the Director, Fruit and Vegetable Division, Agricultural Marketing Service, United States Department of Agriculture, Washington Department of Agriculture, Washington Department of this notice in the Federal Register.

The proposals are as follows:

#### CT3711111 4 T

Sec.

945.100 Communications.

### DEFINITIONS

945.110 Order. 945.111 Marketing Agreement.

945.112 Terms.

945.113 Registered handler.

### SAFEGUARDS

945.120 Application for Certificate of Privi-

lege. 945.121 Issuance.

945.122 Reports.

945.123 Denial and appeal.

### EXEMPTION PROCEDURES

945.130 Application.

945.131 Investigations.

945.132 Issuance. 945.133 Disposition of certificates.

945.134 Reports.

945.135 Appeals.

AUTHORITY: §§ 945.100 to 945.135 issued under sec. 5, 49 Stat. 753, as amended; 7 U. S. C. 608c.

### GENERAL

§ 945.100 Communications. Unless otherwise provided in the marketing agreement and order, or by specific direction of the committee, all reports, applications, submittals, requests, and communications in connection with the marketing agreement and order shall be addressed to the Florida Tomato Committee at its principal office.

### DEFINITIONS

§ 945.110 Order "Order" means Order No. 45 (7 CFR Part 945; 20 F R. 7357) regulating the handling of tomatoes grown in Florida.

§ 945.111 Marketing agreement. "Marketing Agreement" means Marketing Agreement No. 125.

§ 945.112 *Terms*. Terms used in this subpart shall have the same meaning as when used in the marketing agreement and order.

§ 945.113 Registered handler For purposes of this part, a registered handler is a person who has adequate facilities for grading tomatoes for market and who assumes initial responsibility for compliance with inspection, assessment, and other regulatory requirements on the handling of tomatoes grown in the production area. Any person who

wishes to become a registered handler shall make application for registration with the committee on forms prescribed by and available at the principal office of the committee. If such applicant has facilities which are determined by the committee as adequate for grading tomatoes, he may be approved as a registered handler. Persons who make deliveries of ungraded tomatoes to such registered handlers are hereby determined to be exempt from otherwise applicable regulations pursuant to this part.

#### SAFEGUARDS

§ 945.120 Application for Certificate of Privilege. (a) Whenever handling is regulated pursuant to § 945.53, each handler desiring to make shipments of tomatoes for any of the following purposes shall, prior thereto, apply to the committee for and obtain a Certificate of Privilege permitting such shipment:

(1) For relief or charity; or

(2) For canning.

(b) Applications for Certificates of Privilege shall be made on forms furnished by the committee. Each application shall contain the name and address of the handler, and such other information as such committee may require, such as, but not limited, to the quantity (by grade, size, quality, and variety) of tomatoes to be shipped, the mode of transportation, consignee, destination, and other appropriate information or documents necessary to safeguard against the entry of such tomatoes into trade channels other than those for which the Certificate of Privilege is granted.

§ 945.121 Issuance. The committee, or its duly authorized agents, shall give prompt consideration to each application for a Certificate of Privilege and shall determine whether the application is approved. Approval of an application shall be evidenced by the issuance of a Certificate of Privilege authorizing the applicant named therein to ship tomatoes for a specified purpose for a specified period of time.

§ 945.122 Reports. Each handler handling tomatoes under and pursuant to a Certificate of Privilege shall supply the committee with a report thereon within the time specified on the application for such certificate showing the name and address of the shipper, car or truck identification, loading point, destination, consignee, and, when inspection is required, the Federal-State Inspection Certificate number.

§ 945.123 Denial and appeal. The committee may rescind a Certificate of Privilege issued to a handler, or deny a Certificate of Privilege to a handler, upon proof satisfactory to such committee, that such handler has shipped tomatoes contrary to the provisions of this part. Such committee action denying a Certificate of Privilege shall apply to and not exceed a reasonable period of time as determined by such committee. Any handler who has been denied a Certificate of Privilege, or who has had a Certificate of Privilege rescinded, may appeal to the committee for reconsideration. Such appeal shall be in writing.

### EXEMPTION PROCEDURES

§ 945.130 Application. Any person applying for exemption from regulations issued pursuant to § 945.52 shall file such application with the committee, or its duly authorized agent for such purpose, on forms to be furnished by such committee. Each application shall state the name and address of the applicant, the grade, size, and quality regulations from which exemption is requested; and facts demonstrating that the tomatoes, for which exemption is requested, were adversely affected by acts beyond his control or by acts beyond the applicant's reasonable expectation. Each application for an exemption certificate must be accompanied by a Federal-State Inspection Certificate covering the specified quantity of tomatoes for which exemption is requested: Provided, That the .committee may authorize the submission of such Federal-State Inspection Certificate subsequent to the filing of the application for exemption and prior to consideration of such application. Applications shall set forth such additional information as the committee may find necessary in making determinations with respect thereto, including, without limitation thereto, the information required on producers' applications by paragraphs (a) and (b) of this section.

(a) The location of the farm on which tomatoes for which exemption is requested were produced, the location where such tomatoes are to be prepared for market, and the loading point from which such tomatoes are to be shipped if exemption is granted;

(b) Acreage and quantity (by grade, size, quality, and variety) of tomatoes harvested prior to the date of application and to be harvested, subsequent to such date, during the remainder of the season or specific portion thereof (as may be determined pursuant to this part) the quantity (by grade, size, quality, and variety) of tomatoes disposed of prior to the date of application and to be disposed of subsequent to such date; the location of the tomatoes to be disposed of, together with the place where such tomatoes will be handled; an estimate of the portion of such tomatoes which can be handled under regulation issued pursuant to § 945.52, during the remainder of the season; and the reasons why all of such tomatoes cannot be handled under such regulations.

§ 945.131 Investigations. The committee may authorize investigations of applications by its employees, Federal-State inspectors, and such other persons as may be necessary to procure adequate information to pass upon the merits of such applications.

§ 945.132 Issuance. (a) The committee, or its duly authorized agents, shall give prompt consideration to all statements and facts relating to each application for exemption, and, pursuant to applicable provisions of this part, a determination shall be made as to whether or not the application is approved. The determination, if approving the application, shall be evidenced by the issuance of a certificate of exemption pursuant to § 945.71. Provided, That more than one certificate may be issued, at the request of an applicant, where the applicant ships or causes to be shipped the total quantity of exempted tomatoes in more than one lot, in which case each certificate so issued shall be limited to the quantity of exempted tomatoes to be contained in the respective lots shipped and the total quantity of exempted tomatoes covered by such cer-tificates shall not exceed the total quantity of such tomatoes which would be authorized if only one certificate were issued to such applicant.

(b) The applicant shall be notified in writing if his request for exemption is denied.

(c) Each exemption certificate issued pursuant to this subpart shall be on a form duly approved by the committee and signed by an authorized representative of such committee. At least one

copy of each exemption certificate issued shall be retained in the committee records. Each such certificate shall contain the name and address of the recipient. the location of all tomatoes authorized to be shipped thereunder, the quantity (by grade, size, quality and variety) of tomatoes which will be permitted in the exempted shipments and such other information as may be deemed necessary by the committee to provide such committee, the recipient, or both, with adequate and specific information regarding such exempted tomatoes.

§ 945.133 Disposition of certificates. Each lot of tomatoes handled under an exemption certificate shall be accompanied by such certificate, or such appropriate identifying information with respect to such certificate, as the committee may require, to facilitate the administration of regulatory provisions applicable thereto.

§ 945.134 Reports. Persons handling tomatoes under exemption certificates shall, at such time as may be specified in such certificates, report thereon to the committee the names and addresses of the receivers of such tomatoes, the quantity shipped (by grade, size, quality, and variety) the inspection certificates 1ssued with respect thereto, the dates of such shipments, and such other information as may be requested by such committee in order to administer the regulatory provisions applicable thereto.

§ 945.135 Appeals. If any applicant is dissatisfied with the determination of the committee regarding an application for an exception certificate, or any duly issued exemption certificate an appeal by such applicant may be taken to such committee in accordance with § 945.74.

Dated: December 6, 1955.

S. R. Senth. Director Fruit and Vegetable Division.

[F. R. Doc. 55-9323; Filed, Dec. 8, 1955; 8:48 a. m.]

### NOTICES

### DEPARTMENT OF COMMERCE

Bureau of the Census

INVENTORIES, SALES, AND ACCOUNTS RECEIVABLES OF RETAILERS

NOTICE OF CONSIDERATION FOR SURVEYS

Notice is hereby given that the Bureau of the Census is considering a proposal to conduct a 1955 Annual Retail Trade Survey of year-end inventories; annual sales: and accounts receivable. charge and installment, as of the end of the year, under the provisions of the Act of Congress approved August 31, 1954, 13 U.S.C. 181, 224, and 225. This survey will provide the only continuing source of important information on these phases of retail trade in the various kinds of retail business. On the basis of information and recommendations received by the Eureau of the

Census, the data will have significant number of retail stores operated will be application to the needs of the public, the distributive trades, and governmental agencies, and are not publicly available from non-governmental or other governmental sources.

Such survey, if conducted, shall begin not earlier than 30 days after publication of this notice in the FEDERAL REGISTER.

Reports will not be required from all retail firms in the United States, but only from a selected sample, in order to provide, with measurable reliability, regional annual sales figures, national inventory figures, sales-inventory ratios, and charge and installment accounts receivable as of the end of the year. Reports will be requested from sampled stores on the basis of their sales size and/or location in Census Sample Areas. A group of the largest firms in terms of

requested to report regardless of the store locations.

Copies of the proposed forms and a description of the collection methods are available on request to the Director, Bureau of the Census, Washington 25. D. C.

Any suggestions or recommendations concerning the subject matter of this proposed survey should be submitted in writing to the Director of the Census and will receive consideration.

[SEAL] ROBERT W. BURGESS, Director Bureau of the Census.

Approved:

SINCLAIR WEEKS, Secretary of Commerce.

[F. R. Doc. 55-9325; Filed, Doc. 8, 1355; 8:43 a. m.1

### Federal Maritime Board

CLAN LINE STEAMERS LTD. ET AL.

NOTICE OF AGREEMENTS FILED WITH THE BOARD FOR APPROVAL

Notice is hereby given that the following described agreements have been filed with the Board for approval pursuant to section 15 of the Shipping Act, 1916, as amended: 39 Stat. 733, 46 U.S. C. 814.

- (1) Agreement No. 8037, between Clan Line Steamers Limited (Clan Line) and Bull Insular Line, Inc., covers the transportation of gunny sacks, hessian cloth and jute under through bills of lading from India and Pakistan to Puerto Rico, with transhipment at New York, Baltimore or Philadelphia. Agreement No. 8037 was filed to supersede and cancel approved transhipment Agreement No. 7744.
- (2) Agreement No. 8056, between American Export Lines, Inc., and Bull Insular Line, Inc., covers the transportation of gunny sacks, hessian cloth and jute under through bills of lading from India and Pakistan to Puerto Rico, with transhipment at New York, Baltimore or Philadelphia. Agreement No. 8056 was filed to supersede and cancel approved transhipment Agrèement No. 7963.

(3) Agreement No. 8058, between Matson Navigation Company and Fred. Olsen & Co. (Fred. Olsen Line), covers the transportation of canned pineapple on through bills of lading from Hawaii to Europe, with transhipment at ports on the Pacific Coast of the United States.

Interested parties may inspect these agreements and obtain copies thereof at the Regulation Office, Federal Maritime Board, Washington, D. C., and may submit, within 20 days after publication of this notice in the FEDERAL REGISTER, written statements with reference to any of the agreements and their position as to approval, disapproval, or modification, together with request for hearing should such hearing be desired.

By order of the Federal Maritime

Dated: November 5, 1955.

[SEAL]

A. J. WILLIAMS. Secretary.

[F. R. Doc. 55-9919; Filed, Dec. 8, 1955; 8:47 a. m.]

### Office of the Secretary

[Dept. Order 162]

SURETY BONDS

### REDELEGATION OF AUTHORITY

SECTION 1. Purpose. The purpose of this order is to redelegate the authority of the Secretary of Commerce under the act of August 9, 1955, Public Law 323, 84th Congress (69 Stat. 618; 6 U.S. C. 14), with respect to obtaining surety bonds to cover officers and employees of the Department and to prescribe the reporting requirements incident thereto.

SEC. 2. Delegation of authority. .01 Pursuant to the authority vested in the Secretary of Commerce by law, the heads of primary organization units and

the Director, Office of Budget and Management for the Office of the Secretary, are hereby authorized to obtain appropriate surety bonds to cover officers and employees of the Department who are required by law or administrative ruling to be bonded.

.02 \ The purchase of bonds pursuant to this authority shall be in accordance with the applicable regulations promulgated by the Secretary of the Treasury and published at 20 F R. 8288 (31 CFR Chap. II, Subchapter A, Part 226) including such amendments of these regulations as may be issued from time to time, all of which are made a part hereof by reference.

.03 The authority delegated herein may be redelegated to such officers or employees as the heads of primary organization units and the Director, Office of Budget and Management may desig-

SEC. 3. Reports. .01 In order to comply with the reporting requirements of the act of August 9, 1955, and the Treasury Regulations, each primary organization unit and the Office of Budget and Management for the Office of the Secretary, shall prepare and submit to the Director, Office of Budget and Management, not later than May 15, 1956, an mitial report of operations under the act prior to April 30, 1956.

.02 A similar report shall be submitted to the Office of Budget and Management not later than August 1 of 1957 and each year thereafter covering operations under the act for the preceding fiscal year.

The reports prescribed herein .03 shall contain the information specified in the pertinent regulations of the Department of the Treasury.

Sec. 4. General provision. While the provisions of this order do not become effective until January 1, 1956, the head of each primary organization unit and the Director, Office of Budget and Management should take such action, prior to that date, as may be necessary to obtain bonds to be effective on January 1, 1956, or as soon thereafter as practicable.

Effective date: January 1, 1956.

[SEAL]

SINCLAIR WEEKS, Secretary of Commerce.

[F. R. Doc. 5549926; Filed, Dec. 8, 1955; 8:48 a. m.]

### JOHN V. BURLEY

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

### Report of Appointment

- 1. Name of appointee: Mr. John V. Burley.
- 2. Employing agency. Department of Commerce, Business and Defense Services Administration.
- 3. Date of appointment: November 30, 1955.
- 4. Title of position: Director, Iron and [F. R. Doc. 55-9955; Filed, Dec. 8, 1955; Steel Division.

5. Name of private employer Republic Steel Corporation, Cleveland, Ohio.

> CARLTON HAYWARD. Director of Personnel.

### Statement of Financial Interests

6. Names of-

a. Any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks. bonds, or other financial interests;

b. Any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and

c. Any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interests.

Republic Steel Corporation; Bank deposits.

Dated: November 30, 1955.

John V. Burley,

[F. R. Doc. 55-9954; Filed, Dec. 8, 1955; 8:49 a. m.]

### HARRY F BOWER

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

### Report of Appointment

- 1. Name of appointee: Harry F. Bower. 2. Employing agency. Department of Commerce, Business and Defense Services Administration.
- 3. Date of appointment: June 24, 1955.
- 4. Title of position: Director, Water and Sewerage Industry and Utilities Division.
- 5. Name of private employer. James B. Clow & Sons, Chicago, Illinois.

CARLTON HAYWARD, Director of Personnel.

### Statement of Financial Interests

6. Names of-

a. Any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests:

b. Any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and

- c. Any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.
- a. Corporation Officer or Director—None. Stocks—General Public Utilities. Bonds— None. Other financial interests-James B. Clow and Sons and bank deposits.
  - b. None.
  - c. None.

Dated: November 30, 1955.

HARRY F BOWER.

8:49 a. m.]

### ERNEST W. DANIELS

REPORT OF APPOINTMENT AND STATELIENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950; as amended.

### Report of Appointment

- 1. Name of appointee: Ernest W Daniels.
- 2. Employing agency. Department of Commerce, Business and Defense Services Administration.
- 3. Date of appointment: November 10, 1955.
  - 4. Title of position: Consultant.
- 5. Name of private employer: Harbor Plywood Corporation, Aberdeen, Washington.

CARLTON HAYWARD, Director of Personnel.

### Statement of Financial Interests

- 6. Names of-
- a. Any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests;
- b. Any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and
- c. Any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.
- a. Harbor Plywood Corporation-stock.
- c. Northwest Research & Development Co., Bank deposits.

Dated: November 10, 1955. Redated: November 23, 1955.

ERNEST W DANIELS.

[F. R. Doc. 55-9956; Filed, Dec. 8, 1955; 8:49 a. m.]

### LEWIS T. GIBBS

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended,

### Report of Appointment

- 1. Name of appointee: Mr. Lewis T.
- 2. Employing agency Department of Commerce, Business and Defense Services Administration.
- 3. Date of appointment: November 23, 1955.
- 4. Title of position: Chief, Carbon and Alloy, Semifinished Rail, Structural, Bars, Wire and Forgings Branch.
- 5. Name of private employer: United States Steel Corporation, 525 William Penn Place, Pittsburgh, Pennsylvania.

CARLTON HAYWARD, Director of Personnel.

### Statement of Financial Interests

6. Names of-

a. Any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests;

b. Any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner and

- c. Any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.
- U. S. Steel Corporation; Gulf Oil Corporation; Bank deposits.

Dated: November 28, 1955.

LEWIS T. GIBES.

[F. R Doc. 55-9957; Filed, Dec. 8, 1955; 8:50 a. m.]

### GLENN R. HUGHES

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

### Report of Appointment

- 1. Name of appointee: Glenn R. Hughes.
- Employing agency Department of Commerce, Business and Defense Services Administration.
- 3. Date of appointment: March 24, 1955.
- 4. Title of position: Chief, Castings Branch, Iron and Steel Division.
- 5. Name of private employer: The Ohio Steel Foundry Company, Springfield, Ohio.

CARLTON HAYWARD, Director of Personnel.

### Statement of Financial Interests

- 6. Names of-
- a. Any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any ctocks, bonds, or other financial interests;
- b. Any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and
- c. Any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.
- a. Bank deposits; building and loan deposits; The Ohio Steel Foundry Company.
- b. None
- c. None.

Dated: November 23, 1955.

GLENN R. HUCHES.

[F. R. Doc. 55-9958; Filed, Dec. 8, 1935; 8:50 a.m.]

### FREDERICK A. MERLISS

REPORT OF APPOINTMENT AND STATEMENT
OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

### Report of Appointment

- 1. Name of appointee: Mr. Frederick A. Merliss.
- 2. Employing agency Department of Commerce, Business and Defense Services Administration.
- 3. Date of appointment: November 30, 1955.
- 4. Title of position: Deputy Director, Aluminum and Magnesium Division.
- 5. Name of private employer: United Smelting & Aluminum Company, Inc., New Haven, Connecticut.

CARLTON HAYWARD, Director of Personnel.

### Statement of Financial Interests

6. Names of-

- a. Any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests;
- b. Any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and
- c. Any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.

Aluminium Ltd., Atlas Plywood Corporation; Bridgeport Hardware Manufacturing Company; Compalidated Natural Gas Corporation; The Equity Corporation; Farrel Birmingham Company; Grumman Aircraft Engineering Corporation; International Llineral & Chemical Company; The Kerite Company; National Cylinder Gas Company; Ashland Oll & Refining Company; International Telephone & Telegrach Company; American & Foreign Power; Pennsylvania Railroad; Radio Corporation of America; Solar Aircraft Company; Standard Oll Company of New Jercey; Texas Eastern Transmission Corporation; United Bluminating Company; United Smelling & Aluminum Company, United Smelling & Aluminum Company, Inc.; Vecder Root, Inc., Westinghouse Electric Corporation; Whitney Blake Company; Youngstown Sheet & Tube Company; Bank deposites

Dated: November 30, 1955.

FREDERICK A. MERLISS.

[F. R. D33, 55-9359; Filed, Dec. 8, 1955; 8:50 a.m.]

THOMAS J. MOORE, JR.

REPORT OF APPOINTMENT AND STATEMENT OF PHIANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

**NOTICES** 9166

### Report of Appointment

- 1. Name of appointee: Thomas J. Moore. Jr.
- 2. Employing agency. Department of Commerce, Business and Defense Services Administration.
- 3. Date of appointment: April 26, 1955; November 30, 1955; Consultant.
- 4. Title of position: Director, Iron and Steel Division.
- 5. Name of private employer: Sharon Steel Corporation.

CARLTON HAYWARD, Director of Personnel.

Statement of Financial Interests

a. Any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests; None.

b. Any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and None.

c. Any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any sımilar ınterest.

Bank deposits; rental property; Sharon Steel Corporation.

Dated: November 28, 1955.

THOS. J. MOORE, Jr.

[F. R. Doc. 55-9960; Filed, Dec. 8, 1955; 8:50 a. m.]

### DEPARTMENT OF LABOR

### Wage and Hour Division

[Administrative Order 454]

Administrator's Advisory Committee on SHELTERED WORKSHOPS

### APPOINTMENTS

Pursuant to authority under the Fair Labor Standards Act of 1938 (52 Stat. 1060, as amended; 29 U.S.C. 201 et seq.) I, Newell Brown, Administrator of the Wage and Hour Division, United States Department of Labor, do hereby appoint the following named persons as members of the Administrator's Advisory Committee on Sheltered Workshops:

Mr. John M. Convery, National Association of Manufacturers, New York, New York.

Mr. Willis C. Gorthy, Institute for the Crippled and Disabled, New York, New York.

Mr. Lewis Hines, American Federation of Labor, Washington, D. C.

Mr. Edward Hochhauser, Altro Health and Rehabilitation Services, Inc., New York, New York.

Mr. S. L. Hoffman, S. L. Hoffman Manufac-

turing Company, New York, New York. Dr. Henry H. Kessler or (serving as alternate) Miss Florence Stattel, The Kessler Institute for Rehabilitation, West Orange, New Jersey.
Mrs. Elizabeth K. Lammie, Pennsylvania

Branch Shut-In Society, Philadelphia, Penn-

Colonel J. F. McMahon, Volunteers of America, New York, New York. Rt. Rev. Msgr. John O'Grady, National

Conference of Catholic Charities, Washington, D. C.

Mr. Kenneth E. Pohlmann, United Mine Workers of America, Welfare and Retirement Fund, Washington, D. C.

Harry Read, Congress of Industrial

Organizations, Washington, D. C. Mr. Peter J. Salmon, Industrial Home for the Blind, Brooklyn, New York.
Mr. Percy J. Trevethan, Goodwill Indus-

tries of America, Inc., Washington, D. C.

Miss Louise McGuire (nonvoting member), Wage and Hour and Public Contracts Divisions, United States Department of Labor, Washington, D. C.

The above appointments will expire June 30, 1957.

Signed at Washington, D. C., this 5th day of December 1955.

> NEWELL BROWN, Administrator Wage and Hour Division.

[F. R. Doc. 55-9920; Filed, Dec. 8, 1955; 8:48 a. m.]

### DEPARTMENT OF THE TREASURY

### Foreign Assets Control

IMPORTATION OF CERTAIN MERCHANDISE DIRECTLY FROM HONG KONG

> AVAILABLE CERTIFICATIONS BY THE GOVERNMENT OF HONG KONG

Notice is hereby given that certificates of origin issued by the Department of Commerce and Industry of the Government of Hong Kong under procedures agreed upon between that government and the Foreign Assets Control are now available with respect to the importation into the United States directly, or on a through bill of lading, from Hong Kong of the following additional commodities:

Bronze imitation antiques. Hand-painted wallpaper.

[SEAL]

ELTING ARNOLD. Acting Director Foreign Assets Control.

[F. R. Doc. 55-9930; Filed, Dec. 8, 1955; 8:48 a. m.]

### DEPARTMENT OF THE INTERIOR

### Bureau of Land Management

COLUMBIA RIVER MASTER UNIT AND APPURTENANT MARKETING AREA, ORE-__ GON

HEARING TO CONSIDER CONTINUATION, MODIFICATION OR REVOCATION

**DECEMBER 5, 1955.** 

Notice is hereby given that pursuant to the authority vested in the Secretary of the Interior by the Act of August 28, 1937 (50 Stat. 874) a public hearing is scheduled for 10:00 a. m., P. s. t., January 20, 1956, at the Interior Auditorium, Interior Building, 1001 Northeast Lloyd Boulevard, Portland, Oregon, to consider whether or not the marketing area established by Secretarial Order No. 2388 on November 29, 1947, should be continued, modified or revoked.

The hearing will be open to all interested persons.

Any written briefs, statements or documents which are to be presented at the

hearing must be submitted to Mr. James F Doyle, Area Administrator, Bureau of Land Management, P O. Box 3861, Portland, Oregon, on or before January 13, 1956.

> DEPUE FALOK, Acting Director

[F. R. Doc. 55-9902; Filed, Dec. 8, 1955; 8:45 a. m.]

### Office of the Secretary

[Order 2805]

DEPUTY DIRECTOR, BUREAU OF MINES DELEGATION OF AUTHORITY

**DECEMBER 1, 1955.** 

SECTION 1. Delegation: The Deputy Director of the Bureau of Mines may exercise all authority delegated to tho Director by the Secretary of the Interior.

SEC. 2. Revocation: Order No. 2786 (20 F R. 797) is revoked.

(Sec. 2, Reorganization Plan No. 3 of 1950; 5 U. S. C., 1952 ed., sec. 133z-15, note)

> DOUGLAS MCKAY. Secretary of the Interior

[F. R. Doc. 55-9904; Filed, Dec. 8, 1955; 8:45 a. m.]

### FEDERAL POWER COMMISSION

[Docket No. G-8331] WESTHOMA OIL CO.

NOTICE OF APPLICATION AND DATE OF HEARING

DECEMBER 5, 1955.

Take notice that Westhoma Oil Company (Applicant), a Delaware corporation whose address is Post Office Box 245, Hooker, Oklahoma, filed on January 6, 1955, an application for a certificate of public convenience and necessity pursuant to section 7 of the Natural Gas Act, authorizing Applicant to render service as hereinafter described, subject to the jurisdiction of the Commission, all as more fully represented in the application which is on file with the Commission and open for public inspection.

Applicant proposes to sell natural gas in interstate commerce from production in the Keyes Field, Cimarron County, Oklahoma, to Colorado Interstate Gas Company for resale.

This matter is one that should be disposed of as promptly as possible under the applicable rules and regulations and to that end:

Take further notice that, pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by sections 7 and 15 of the Natural Gas Act, and the Commission's rules of practice and procedure, a hearing will be held on Wednesday, January 11, 1956 at 9:40 a. m., e. s. t., in a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D. C., concerning the mat-ters involved in and the issues presented by such application: Provided, however, That the Commission may after a non-

contested hearing, dispose of the proceedings pursuant to the provisions of section 1.30 (c) (1) or (c) (2) of the Commission's rules of practice and procedure. Under the procedure herein provided for, unless otherwise advised, it will be unnecessary for Applicant to appear or be represented at the hearing.

Protests or petitions to intervene may be filed with the Federal Power Commission. Washington 25, D. C., in accordance with the rules of practice and procedure (18 CFR 1.8 or 1.10) on or before December 21, 1955. Failure of any party to appear at and participate in the hearing shall be construed as waiver of and concurrence in omission herein of the intermediate decision procedure in cases where a request therefor is made.

[SEAL]

LEON M. FUQUAY, Secretary.

[F. R. Doc. 55-9910; Filed, Dec. 8, 1955; 8:46 a. m.]

[Docket No. G-8334]

PHILLIPS PETROLEUM Co.

NOTICE OF APPLICATION AND DATE OF HEARING

DECEMBER 5, 1955.

Take notice that Phillips Petroleum Company (Applicant) a Delaware corporation whose address is Bartlesville, Oklahoma, filed, as non-operator on January 10, 1955, an application for a certificate of public convenience and necessity pursuant to section 7 of the Natural Gas Act, authorizing Applicant to render service as hereinafter described, subject to the jurisdiction of the Commission, all as more fully represented in the application which is on file with the Commission and open for public inspection.

Applicant proposes to sell natural gas m interstate commerce from production of the Hamilton Lease, Keyes Field, Texas County, Oklahoma, to Colorado Interstate Gas Company for resale.

This matter is one that should be disposed of as promptly as possible under the applicable rules and regulations and to that end:

Take further notice that, pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by sections 7 and 15 of the Natural Gas Act, and the Commission's rules of practice and procedure, a hearing will be held on Wednesday, January 11, 1956, at 9:50 a. m., e. s. t., m a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D. C., concerning the matters involved in and the issues presented by such application: Provided, however That the Commission may, after a non-contested hearing, dispose of the proceedings pursuant to the provisions of section 1.30 (c) (1) or (c) (2) of the Commission's rules of practice and procedure. Under the procedure herein provided for, unless otherwise advised, it will be unnecessary for Ap-

the hearing.

Protests or petitions to intervene may be filed with the Federal Power Commission, Washington 25, D. C., in accordance with the rules of practice and procedure (18 CFR 1.8 or 1.10) on or before December 21, 1955. Failure of any party to appear at and participate in the hearing shall be construed as waiver of and concurrence in omission herein of the intermediate decision procedure in cases where a request therefor is made.

LEON M. FUQUAY, Secretary.

[F. R. Doc. 55-9911; Filed, Dec. 8, 1955; 8:46 a. m.]

[Docket Nos. G-8446, G-8447]

United Producing Co., Inc. and United CAREON CO., INC.

NOTICE OF APPLICATIONS AND DATE OF HEARING

DECEMBER 5, 1955.

Take notice that United Producing Company, Inc., and United Carbon Company, Inc. (Maryland), hereinafter referred to as Applicant, Maryland corporations whose addresses are United Carbon Building, Charleston, West Virginia, each filed, on February 8, 1955, an application for a certificate of public convenience and necessity pursuant to Section 7 of the Natural Gas Act, authorizing Applicant to render service as heremafter described, subject to the jurisdiction of the Commission, all as more fully represented in the applications which are on file with the Commission and open for public inspection.

Applicant proposes to sell natural gas in interstate commerce from production of the 160 acre E. Isom, 640 acre Ella Hamilton, 160 acre Minnie Ross and 320 acre B. Chapman 2 leases, Keyes Field, Texas and Cimarron Counties, Oklahoma, to Colorado Interstate Gas Company for resale.

These related matters should be heard on a consolidated record and disposed of as promptly as possible under the applicable rules and regulations and to that

Take further notice that, pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by sections 7 and 15 of the Natural Gas Act, and the Commission's rules of practice and procedure, a hearing will be held on Thursday, January 12, 1956, at 9:30 a. m., e. s. t., in a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D. C., concerning the matters involved in and the issues presented by such applications: Provided, however, That the Commission may, after a non-

plicant to appear or be represented at contested hearing, dispose of the proceedings pursuant to the provisions of cection 1.30 (c) (1) or (c) (2) of the Commission's rules of practice and procedure. Under the procedure herein provided for, unless otherwise advised, it will be unnecessary for Applicant to appear or be represented at the hearing.

Protests or petitions to intervene may be filed with the Federal Power Commission, Washington 25, D. C., in accordance with the rules of practice and procedure (18 CFR 1.8 or 1.10) on or before December 22, 1955. Failure of any party to appear at and participate in the hearing shall be construed as waiver of and concurrence in omission herein of the intermediate decision procedure in cases where a request therefor is made.

[SEAL]

LEON M. FUQUAY. Secretary.

[F. R. Doc. 55-9912; Filed, Dec. 8, 1955; 8:46 a. m.1

[Docket No. G-8497]

AMERADA PETROLEUM CORP.

HOTICE OF APPLICATION AND DATE OF HEARING

DECEMBER 5. 1955.

Take notice that Amerada Petroleum Corporation (Applicant) a Delaware corporation whose address is P. O. Box 2040, Tulsa 2, Oklahoma, filed, on February 21, 1955, an application for a certificate of public convenience and necessity pursuant to section 7 of the Natural Gas Act, authorizing Applicant to render service as hereinafter described, subject to the jurisdiction of the Commission, all as more fully represented in the application which is on file with the Commission and open for public inspection.

Applicant proposes to sell natural gas in interstate commerce from production of certain leases in the Greenwood Field, Morton County, Kansas, to Colorado Interstate Gas Company for resale.

This matter is one that should be disposed of as promptly as possible under the applicable rules and regulations and

to that end:

Take further notice that, pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by sections 7 and 15 of the Natural Gas Act, and the Commission's rules of practice and procedure, a hearing will be held on Thursday, January 12, 1956, at 9:40 a. m., e. s. t., m a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D. C., concerning the matters involved in and the issues presented by such application: Provided, however, That the Commission may, after a noncontested hearing, dispose of the pro-ceedings pursuant to the provisions of section 1.30 (c) (1) or (c) (2) of the Commission's rules of practice and procedure. Under the procedure herein provided for, unless otherwise advised, it will be unnecessary for Applicant to appear or be represented at the hearing.

Protests or petitions to intervene may be filed with the Federal Power Commission, Washington 25, D. C., in accordance with the rules of practice and procedure

The lease operator is United Producing Company, Inc. See Docket No. G-8446.

^{*}The operator of the 640 acre Ella Hamilton Lease is United Producing Company, Inc., which owns 75 percent thereof. The nonoperator and owner of the remaining 25 percent is Phillips Petroleum Company.

Docket No. G-8334.

2 United Producing Company, Inc. owns 59 percent of the B. Chapman Leace as shown on exhibit A to the application.

(18 CFR 1.8 or 1.10) on or before December 22, 1955. Failure of any party to appear at and participate in the hearing shall be construed as waiver of and concurrence in omission herein of the intermediate decision procedure in cases where a request therefor is made.

[SEAL]

LEON M. FUQUAY, Secretary.

[F. R. Doc. 55-9913; Filed, Dec. 8, 1955; 8:46 a. m.]

[Docket Nos. G-9204, G-9205, G-9206]

DIANE KING, F. B. KING, JR., AND KETHA KING

NOTICE OF APPLICATIONS AND DATE OF HEARING

DECEMBER 5, 1955.

Take notice that Diane King, F B. King, Jr., and Ketha King, individuals whose addresses are Homer, Louisiana, hereinafter referred to as Applicant. each filed, as non-operator on August 8, 1955, an application for a certificate of public convenience and necessity pursuant to section 7 of the Natural Gas Act, authorizing Applicant to render service as hereinafter described, subject to the jurisdiction of the Commission, all as more fully represented in the applications (application) which are on file with the Commission and open for public inspection.

Each Applicant sells natural gas in interstate commerce from production of the 160 acre Jones-Baucum Unit, East Haynesville Field, Claiborne Parish, Louisiana, to Arkansas Louisiana Gas Company for resale.

These related matters should be heard on a consolidated record and disposed of as promptly as possible under the applicable rules and regulations and to that end:

Take further notice that, pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by sections 7 and 15 of the Natural Gas Act, and the Commission's rules of practice and procedure, a hearing will be held on Thursday January 12, 1956, at 9:50 a. m., e. s. t., in a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D. C., concerning the matters involved in and the issues presented by such application: Provided, however, That the Commission may, after a noncontested hearing, dispose of the proceedings pursuant to the provisions of section 1.30 (c) (1) or (c) (2) of the Commission's rules of practice and procedure. Under the procedure herein provided for, unless otherwise advised, it will be unnecessary for Applicant to appear or be represented at the hearıng.

Protests or petitions to intervene may be filed with the Federal Power Commission, Washington 25, D. C., in accordance with the rules of practice and procedure (18 CFR 1.8 or 1,10) on or before December 22, 1955. Failure of any party to appear at and participate in the hearing shall be construed as waiver of and concurrence in omission herein of the intermediate decision procedure in cases where a request therefor is made.

[SEAL]

LEON M. FUQUAY, Secretary.

[F. R. Doc. 55-9914; Filed, Dec. 8, 1955; 8:46 a. m.1

[Docket No. G-9322]

EQUITABLE GAS CO.

NOTICE OF APPLICATION AND DATE OF HEARING

DECEMBER 5, 1955.

Take notice that Equitable Gas Company, a Pennsylvania corporation having its principal office in Pittsburgh, Pennsylvania (Applicant) filed on September 14, 1955, an application for a certificate of public convenience and necessity pursuant to section 7 of the Natural Gas Act, authorizing Applicant to construct and operate natural gas facilities and render service as hereinafter described, subject to the jurisdiction of the Commission all as more fully represented in the application which is on file with the Commission and open for public inspection.

Applicant proposes to construct and operate approximately 1,430 feet of 6-inch pipeline extending from Applicant's 12-inch main line to a proposed one well storage pool located on the Hayes Farm, Mannington District, Marion County, West Virginia. The estimated cost of the project is \$71,655, of which \$7,650 will be for the cost of the proposed pipeline, with the remainder being for costs of reconditioning, acquisition of storage rights, and purchase of remaining gas in place. Applicant states it will utilize the capacity of the existing 12-inch line connecting the Logansport Storage Pool, and Logansport Compressor Station to operate the Hayes Pool, hence, both storage pools will be operated in combination, which will provide capacity for an increase in daily winter time supply enabling Applicant to better serve peak day gas requirements estimated for future winter seasons. No new market is contemplated as a result of utilization of the Hayes Storage Pool.

This matter is one that should be disposed of as promptly as possible under the applicable rules and regulations and to that end:

Take further notice that, pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by sections 7 and 15 of the Natural Gas Act, and the Commission's rules of practice and procedure, a hearing will be held on January 10, 1956, at 9:30 a.m., e. s. t., in a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D. C., concerning the matters involved in and the issues presented by such application: Provided, however That the Commission may after a non-contested hearing, dispose of the proceedings pursuant to the provisions of section 1.30 (c) (1) or (c) (2) of the Commission's rules of practice and procedure.

Protests or petitions to intervene may be filed with the Federal Power Commission, Washington 25, D. C., in accordance with the rules of practice and procedure (18 CFR 1.8 or 1.10) on or before December 30, 1955. Failure of any party to appear at and participate in the hearing shall be construed as waiver of and concurrence in omission herein of the intermediate decision procedure in cases where a request therefor is made. Under the procedure herein provided for, unless - otherwise advised, it will be unnecessary for Applicant to appear or be represented at the hearing.

LEON M. FUQUAY. Secretary.

[F. R. Doc. 55-9915; Filed, Dec. 8, 1955; 8:47 a. m.]

[Docket No. G-94351

KANSAS-NEBRASKA NATURAL GAS CO. NOTICE OF APPLICATION AND DATE OF HEARING

DECEMBER 5, 1955.

Take notice that Kansas-Nebraska Natural Gas Company (Applicant), a Kansas corporation with its principal place of business at Phillipsburg, Kansas, filed an application on October 5. 1955, as amended on October 31, 1955, for a certificate of public convenience and necessity, pursuant to section 7 of the Natural Gas Act, authorizing the acquisition and operation of an abandoned oil pipeline and the construction and operation of connection facilities to convert the oil line into an integral part of its existing interstate natural gas transmission system, as hereinafter described, subject to the jurisdiction of the Commission, all as more fully represented in the application which is on file with the Commission and open to public inspection.

Applicant proposes to acquire, connect to its existing system and to operato approximately 14 miles of 16 inch abandoned crude oil pipeline now in place, replacing a similar quantity of 8 inch pipeline now in use in its existing system between North Platte and Brady, Nobraska. The 16 inch line is located near the 8 inch line and parallel to it. The 16 inch pipeline is being purchased from O. R. Burden Construction Company, and was formerly owned by Service Pipeline Company.

Applicant states that the present authorized capacity of its system is only sufficient to meet its requirements for the anticipated 1955-56 peak day. The substitution of the 14 miles of 16 inch pipe for the present 8 inch line will permit the transmission from Western Nebraska and Northeastern Colorado fields of an additional 2,500 Mof on peak days, into the central and northeastern Nebraska portion of the system, which additional 2,500 Mcf will assure adequate service to the increasing firm market demand of present customers in Central and Northeastern Nebraska.

¹The operator of the Unit is Southwest Natural Production Company. See Docket No. G-7229.

Applicant also states that the increase in capacity will allow it to transport an additional 1,500 Mcf per day of oil well gas from the western system into the eastern portion of its system during the summer months, therefore making available gas that is presently being flared. No change in authorized service is proposed.

Applicant proposes to pay \$159,268 for the oil line in place, plus an estimated \$19,835 for cost of connection with the existing system. There will be a credit of \$25,830 due to reclaiming the 8 inch line, leaving a new total cost to Applicant of \$153,273 which will be financed from current funds.

This matter is one that should be disposed of as promptly as possible under the applicable rules and regulations and to that end:

Take further notice that, pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by sections 7 and 15 of the Natural Gas Act, and the Commission's rules of practice and procedure, a hearing will be held on January 10, 1955, at 9:30 a.m., e. s. t., in a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D. C. concerning the matters involved in and the issues presented by such application: Provided, however That the Commission may, after a non-contested hearing, dispose of the proceedings pursuant to the provisions of section 1.30 (c) (1) or (c) (2) of the Commission's rules of practice and procedure. Under the procedure herein provided for, unless otherwise advised, it will be unnecessary for Applicant to appear or be represented at the hearing.

Protests or petitions to intervene may be filed with the Federal Power Commission, Washington 25, D. C., in accordance with the rules of practice and procedure (18 CFR 1.8 or 1.10) on or before December 23, 1955. Failure of any party to appear at and participate in the hearing shall be construed as waiver of and concurrence in omission herein of the intermediate decision procedure in cases where a request therefor is made.

[SEAT.]

Leon M. Fuquay, Secretary.

[F. R. Doc. 55-9916; Filed, Dec. 8, 1955;

### CIVIL AERONAUTICS BOARD

[Docket No. 1705 et al.]

FLYING TIGER LINE, INC.

NOTICE OF HEARING ON PETITION TO MODIFY
MINIMUM RATE ORDER

In the matter of the petition of Flying Tiger Line, Inc. to modify minimum rates under sections 2, 205 (a) 403, 404, 407 (a) 1002, and 1005 (d) of the Civil Aeronautics Act of 1938, as amended.

Notice is hereby given pursuant to the Civil Aeronautics Act of 1938, as amended, that a hearing in the above-entitled proceeding is assigned to be held on December 13, 1955, at 10:00 a. m., e. s. t., in Room No. 1512 Temporary Building No. 4, Seventeenth Street and Constitution Avenue NW., Washington, D. C. before Examiner Merritt Ruhlen.

For further details of the issues involved in this proceeding interested persons are referred to the petition of Flying Tiger Line, Inc., dated October 7, 1955, and the Prehearing Conference Report issued November 30, 1955, all on file with the Docket Section, Civil Aeronautics Board.

Notice is further given that any person other than parties of record desiring to be heard in this proceeding should file with the Board on or before December 13, 1955 a statement setting forth the issues of fact or law desired to be controverted.

Dated at Washington, D. C., December 5, 1955.

[SEAL]

FRANCIS W. BROWN, Chief Examiner.

[F. R. Doc. 55-9921; Filed, Dec. 8, 1955; 8:48 a. m.]

[Docket No. 1705 et al.]

AMERICAN AIRLINES, INC.

NOTICE OF HEARING ON PETITION TO MODIFY
MINIMUM RATE ORDER

In the matter of the petition of American Airlines, Inc. to modify minimum rates under sections 2, 205 (a) 403, 404, 407 (a), 1002, and 1005 (d) of the Civil Aeronautics Act of 1938, as amended.

Notice is hereby given pursuant to the Civil Aeronautics Act of 1938, as amended, that a hearing in the above-entitled proceeding is assigned to be held on December 13, 1955, at 10:00 a. m., e. s. t., in Room No. 1512, Temporary Building No. 4, Seventeenth Street and Constitution Avenue NW., Washington, D. C. before Examiner Merritt Ruhlen.

For further details of the issues involved in this proceeding interested persons are referred to the petition of American Airlines, Inc., dated October 6, 1955, and the Prehearing Conference Report issued November 30, 1955, all on file with the Docket Section, Civil Aeronautics Board.

Notice is further given that any person other than parties of record desiring to be heard in this proceeding should file with the Board on or before December 13, 1955 a statement setting forth the issues of fact or law desired to be controverted.

Dated at Washington, D. C., December 5, 1955.

[SEAL]

FRANCIS W. BROWN, Chief Examiner.

[F. R. Doc. 55-9922; Filed, Dec. 8, 1955; 8:48 a.m.]

[Docket No. 7339]

Modern Air Transport, Inc., et al. notice of hearing

In the matter of the application of Modern Air Transport, Inc., John P. Becker and Aviation Management Corporation for approval of interlocking relationship, under sections 408 and 409 of the Civil Aeronautics Act of 1938, as amended.

Notice is hereby given, pursuant to the provisions of the Civil Aeronautics Act of 1936, as amended, that hearing in the above-entitled proceeding is assigned to be held on December 13, 1955, at 10:00 a. m., e. s. t., in the Foyer of the Commerce Auditorium, Commerce Building, Fourteenth Street and Constitution Avenue NW., Washington, D. C., before Examiner Curtis C. Henderson.

Dated at Washington, D. C., December 5, 1955.

[SEAL]

FRANCIS W. BEOWN, Chief Examiner.

[P. R. Doc. 55-9323; Filed, Dec. 8, 1955; 8:48 a. m.]

# INTERSTATE COMMERCE COMMISSION

FOURTH SECTION APPLICATIONS FOR RULIEF

DECEMBER 6, 1955.

Protests to the granting of an application must be prepared in accordance with Rule 40 of the General Rules of Practice (49 CFR 1.40) and filed within 15 days from the date of publication of this notice in the FEDERAL REGISTER.

### LONG-AND-SHORT HAUL

FSA No. 31392: Plaster retarder in Official Territory. Filed by H. R. Hinsch, Agent, for interested rail carriers. Rates on plaster retarder, carloads, and in mixed carloads with plaster and related articles and/or gypsum wall-board between points in trunkline, New England and central territories as described in the application, and between such points, on one hand, and points in southern Illinois, also Paducah, Ky., St. Louis, Mo., and other points in Missourn and in proximity to the Mississippi River, on the other.

Grounds for relief: Short-line distance formula and circuity.

Tariff: Supplement 17 to Agent Hinsch's I. C. C. 4662.

FSA No. 31393: Calcium chloride from and to points on The Chicago, Aurora, and Elgin Railway. Filed by H. R. Hinsch, Agent, for interested rail carriers. Rates on calcium chlorides, in carloads, as described in the application, (a) From and to points in central territory, as described on pages 8 through 13 of Agent Hinsch's tariff I. C. C. 4622, (b) from said points to points in trunkline and New England territories as described on pages 16, 20, 21 and 22 of said tariff, on the one hand, and (c) from, to or via points on the Chicago, Aurora and Elgin Railway in northern Illinois described in application.

Grounds for relief: Carrier competition and circuity.

Tariffs: Supplement 153 to Agent Hinsch's I. C. C. No. 3779 and nine other tariffs.

FSA No. 31394: Potatoes—Maine and New Brunswick to T. L., N. E., and Central Territories. Filed by C. W Boin and O. E. Swenson, Agents, for interested rail carriers. Rates on potatoes, (white) carloads, from points in Maine and New Brunswick, Canada to points 9170

in central, New England and trunkline territories.

Grounds for relief: Carrier competition and circuity.

and steel articles to Baltimore, Md. Filed by R. E. Boyle, Jr., Agent, for interested rail carriers. Rates on manufactured iron or steel articles, carloads, from specified points in southern territory, over rail-water routes to Baltimore,

Grounds for relief: Competition of all-rail carriers and maintenance of rates differentially related to all-rail rates-circuitous routes.

Tariff: Supplement 17 to Agent Span-

inger's I. C. C. 1454.

FSA No. 31396: Manufactured iron and steel articles-South to Official Territory. Filed by R. E. Boyle, Jr., Agent, for interested rail carriers. Rates on manufactured iron and steel articles, carloads from specified points in southern territory to specified points in official (including Illinois) territory, Ohio River Crossings and Virginia Cities.

Grounds for relief: Short-line distance formula, grouping, operation through higher-rated territories, and circuity.

Tariffs: Supplement 126 to Agent Spaninger's I. C. C. 1258; Supplement

17 to Agent Spaninger's I. C. C. 1454. FSA No. 31397 Fertilizer solutions from, to and between the Southwest. Filed by F C. Kratzmeir, Agent, for interested rail carriers. Rates on fertilizer ammonating solutions, nitrogen 'me by Executive Order No. 10610 and fertilizer solutions, and phosphatic fertilizer solutions, carloads between (1)

points in southwestern territory (2) between points in southwestern territory, on one hand, and points in Kansas, on the other, and (3) from points in south-FSA No. 31395: Manufactured iron ern territory to points in southwestern territory.

**NOTICES** 

Grounds for relief: Short-line distance formula and circuity.

Tariff: Supplement 102 to Agent Kratzmeir's I. C. C. 4112.

FSA No. 31398: Auto passenger bodies—Gary, Ind., to Norfolk, Va. Filed by H. R. Hinsch, Agent, for interested rail carriers. Rates on passenger automobile bodies, carloads from Gary, Ind., to Norfolk, Va.

Grounds for relief: Carrier competition and circuity.

By the Commission.

[SEAL]

HAROLD D. McCoy, Secretary.

[F. R. Doc. 55-9908; Filed, Dec. 8, 1955; 8:46 a. m.]

### INTERNATIONAL COOPERATION **ADMINISTRATION**

DIRECTOR AND ASSISTANT DIRECTOR OF Office of Transportation

DELEGATION OF AUTHORITY TO WAIVE PRO-VISION OF PROCUREMENT AUTHORIZATIONS REGARDING TRANSPORTATION ON U. S. FLAG COMMERCIAL VESSELS

By virtue of the authority vested in State Department Delegation of Authority No. 85, as amended ("Establishment of International Cooperation Administration and Delegation of Cortain Related Functions") (20 F R. 4825 and 20 F R. 7950), I hereby delegate to the Director of the Office of Transportation and to the Assistant Director of the Office of Transportation the authority to waive, and to issue and sign statements indicating waivers of, compliance with the U.S. flag vessel provision incorporated in any authorization for procurement (including Procurement Authorizations, Project Implementation Orders, Procurement Authorization-Purchase Requisitions, and similar documents) issued by the International Cooperation Administration. This delegation of authority shall be effective as of July 1, 1955.

All actions waiving compliance with the U.S. flag vessel provision incorporated in authorizations for procurement (including Procurement Authorizations, Project Implementation Orders, Procurement Authorization-Purchase Requisitions, and similar documents) issued by either the Foreign Operations Administration or the International Cooperation Administration which have been taken by the Director and other officials of the Office of Transportation since August 26, 1954, are specifically approved, confirmed, adopted, and ratifled.

Dated: November 23, 1955.

JOHN B. HOLLISTER, Director

[F. R. Doc. 55-9906; Filed, Dec. 8, 1955; 8:46 a. m.1